THE MODERN

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CONTAINING,

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ARRANGED UNDER THEIR RESPECTIVE HEADS,

CONNECTED WITH THE

ART OF SOCIAL AND DOMESTIC LIFE,

INCLUDING

MANY VALUABLE ORIGINAL COMMUNICATIONS
THE RESULT OF LONG EXPERIENCE.

BY MRS. MARY HOLLAND,

AUTHOR OF "THE COMPLETE ECONOMICAL COOK."

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In the selection and arrangement of this Volume every attention has been paid to insure the authenticity of its contents, and by rendering it a work acceptable to a liberal public, secure it a place in every domestic establishment, as well in the family of the citizen, the farmer, or the retired gentleman.

It will be found to embrace most of the subjects connected with Domestic Economy, on all of which, the Editor trusts, the Receipts are equally correct and useful; and that while she has endeavoured, by lucid arrangement, to render her volume acceptable as a Book of hasty reference, she trusts it will be esteemed not unworthy the patronage more especially of those who wish to promote a knowledge of the Arts of Domestic and Social Life, on which so much of our attention is bestowed, and with which so large a portion of our comforts are connected.

Without further remark, the Editor submits her labours to the judicious public, not doubting their claims to patronage will be justly and liberally appreciated.

⁂ A New Edition of MRS. HOLLAND'S ECONOMICAL FAMILY COOK AND FRUGAL HOUSEWIFE is just Published, Price 4s. in Boards, and may be had of all Booksellers.

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FAMILY

RECEIPT BOOK

CHAP. I.

AGRICULTURE—RURAL AND DOMESTIC ECONOMY.

WHETHER we consider agriculture as the means of procuring, as well the necessaries, as the comforts and luxuries of life; of providing a security against the calamities of scarcity, famine, and disease; or of engaging the mind in active and extensive pursuits of general knowledge, it is one of the most useful and important of all the arts which have employed the attention of mankind. Its theory is in a great measure dependent on several branches of science, such as natural history, chemistry, experimental philosophy, and mechanics; all of which may be successively applied to its advancement; and without a competent knowledge of these it cannot be properly understood. Its practical part, however, may be carried on independently of scientific experiments. No person, therefore, need be deterred from attempting any improvements, because he is not conversant with the more abstract parts of physical knowledge.—This art is eminently useful, not only for supplying our immediate wants, but because it furnishes us, to a considerable extent, with the means of commerce: for the quantity of corn which we do not want for our own use and consumption, may always fine a ready market, if exported to other countries.

To know the nature and qualities of vegetable productions; to distinguish their peculiar habits; to understand what applications are proper, both to promote the growth of the useful and discourage the noxious; to determine the seasons, soils, and circumstances suitable for all such applications; to be well informed in the natural history of animals, so as to foster those useful to man, and to guard against such as injure cultivated vegetables, are studies sufficient to give full scope to intellectual powers: yet all these are requisite to form an accomplished husbandman.

For ages, husbandry was considered a degrading occupation, consigned only to the lowest of mankind. But happily, the rays of truth have at length pierced the gross mists of prejudice and error: husbandry is no longer despised, and the cultivation of our native land is become a fashionable and philosophical pursuit. We can only give a very brief sketch of this important art.

Of Climate as connected with Husbandry.

It is much to be regretted that sufficient attention is rarely paid by the farmer to the nature of the climate in which his operations are to be carried on. Unless the system which he adopts be calculated for the weather which his crops are likely to experience, every exertion will often terminate in disappointment. The system that is proper for warm and dry situations, is not suitable for cold and wet ones; and in a bleak and backward climate, the nature of the soil ought not only to be attended to, but the utmost care ought to be paid to the early sowing of the earliest variety of seeds. Even the species of stock to be had or kept on a farm, should, in a great measure, be regulated by the climate. A certain degree of heat is essential for bringing every plant, fruit, or grain to perfection. Thus English barley, of equal weight, is more valuable than the Scotch, because, from growing in a warmer climate, it is more fully ripened, and thence possessing more saccharine matter, it produces a greater quantity of spirits, and a stronger malt liquor. It has been calculated that in Great Britain, sixty yards of elevation in the land are equal to a degree of latitude; or, in other words, that sixty yards perpendicularly higher, are, in respect of climate, equal to a degree farther north.

It may be observed, that land, in the same parallel of latitude, other circumstances being similar, is always more valuable in proportion to the comparative lowness of its situation. Hilly countries are always colder than the plains; in considering the crops, therefore, to be raised in any given situation, attention should be paid to the height above the level of the -sea, as well as to its latitude. In latitude 54° and 55° in Great Britain, an elevation of 500 feet above that level is the greatest height at which wheat can be cultivated, with any probable chance of profit, and even there the grain will prove light, and ripen a month later than if sown at the foot of the hills. Between 600 and 800 feet, may be reckoned the usual maximum of elevation for the more common sorts of grain. There are occasional exceptions, where corn grows in higher elevations, but they are rare, and occur generally under peculiar circumstances, either of richness of soil, or of fineness of season.

Of Soils.

The importance of the soil has been described in various ways. It not only supplies plants with nutrition but with heat. A well cultivated and rich, or highly manured soil, is much warmer than the surrounding atmosphere. In short, a favourable soil and climate are deservedly accounted the best riches of a country.

Soils are of various kinds: sand, gravel, clay, peat, chalk, alluvial, and loam, or that species of artificial soil into which others are generally brought by the effects of manure and earthy substances in the course of long cultivation. *Sandy Soils* are calculated for turnips, potatoes, carrots, barley, rye, buck-wheat, pease, clover, sainfoin, and other grasses. A *gravelly soil,* free from stagnant water, gives such additional warmth to the climate, that vegetation is nearly a fortnight earlier than where other soils predominate; in a wet climate it answers well for potatoes. Poor gravelly soils, full of springs, and those sulphureous, are very unfriendly to vegetation; such are better suited to woods than to arable culture. Under proper culture, *clay soils* are well calculated for growing crops of beans, wheat, oats, clover, and winter tares; but they are not adapted for barley, unless immediately after fallow; nor for turnips or potatoes, unless under very peculiar management. Clay soils, however, become good meadow lands, and answer well for hay, or soiling when in grass; but from their aptitude to be poached, they are, in general, unfit to be fed by heavy cattle in wet weather. Arable clay lands should be ploughed previously to the winter setting in, in order to expose them to frost, which will render them completely mellow. In the spring a shallow furrow, or merely scarifying will be sufficient, previous to sowing the seed. *Peat soils* are best adapted for hay crops, although wheat and barley have succeeded on such lands, after they have been supplied with abundance of calcareous earth; fiorin grass seems also well adapted to them. *Chalky soils,* where clayey or earthy substances abound in them, are productive; where sand or gravel is intermixed, they are light, and rather unfertile. The crops chiefly cultivated on such soils are pease, turnips, barley, clover, and wheat; and however much the soil is exhausted, it will produce sainfoin. A black, or blue substratum of tenacious marl, of a rich quality, lies generally under chalk, which, if dug up and mixed with it, not only cures its defects, but enriches it.

Alluvial soils are of two kinds; one from the sediment of fresh, the other of salt water. Those from fresh water lie generally along the sides of rivers, and are commonly employed as meadows. Salt marshes, if secured from the inundations of the sea, soon become rich pasture; or, if broken up for tillage, will produce wheat, barley, oats, clover, and beans. It is said also that lime, in considerable quantities, is found to answer well for such soils. For many years, however, after they are broken up, they want no manure.

Loams are the most desirable of all soils, being friable, and can, in general, be cultivated at almost any season of the year; they are easily ploughed; and above all, they are peculiarly well adapted for the convertible husbandry: for they can be changed not only without injury, but generally with benefit, from grass to tillage, and from tillage to grass. Loams are of various sorts;—sandy, gravelly, clayey, calcareous, peaty, and another called hazel loam.

In regard to sub-soil it may be observed, that the fertility of the soil itself often depends on the quality of the sub-soil. The nature of the sub-soil, as well as the soil itself, must be ascertained before the farmer can with propriety select his plants, determine on the species of manure to be employed, or arrange his course of cultivation.

Of Implements used in Husbandry.

The superiority of British husbandmen over those of other nations, may, in a great measure, be attributed to the numerous and valuable Implements employed in the various processes of agriculture. We can do little more than enumerate the most important of these.—The Plough is the chief; a great variety of which is in use; but the swing plough, the wheel plough, the trench plough, the double furrow plough, and the paring plough, are the chief. The swing plough, on the whole, is greatly preferable for general purposes. Harrows, hoes, and horse-hoes, are also very useful. The scuffler is a useful implement on light lands. The scarifier or grubber, is an improvement on the scuffler. It is an efficient instrument that no extensive farmer should be without. The cultivator is also another similar instrument much used.

The implements for sowing corn are, a hopper or basket; the drill machine, and the dibble.

The implements for reaping corn are, the sickle, reaping hook, and scythe. Attempts have been made to reap with a machine, but they have not succeeded.

There are three sorts of machines for threshing and cleaning corn; the threshing machine; a machine for dressing barley; and fanners, or winnowing machines. Threshing mills, or machines, are driven by various powers; by horses, oxen, wind alone, or cattle when wind fails, water alone, or by cattle when water fails, and by steam. A six-horse power is little enough for all the necessary operations of a farm where wheat is cultivated.

The implements for making hay are, the scythe, the rake, and the fork. But instead of the usual mode of tedding grass, a machine has been invented, of a circular form, with spikes, by which the largest crops are separated, thrown into the air, and scattered about in the most perfect manner. When the hay is to be stacked in the field in which it grew, and it has been formed into large wind-rows, a machine called a sweep is sometimes dragged along the field by four horses in pairs. It is so easily and expeditiously loaded, that it is of great use in precarious weather.

Of all the implements of conveyance, the cart is, beyond a doubt, the cheapest and best. Irish cars have their advantages; tumbrils are also of use for particular purposes.

The Roller is of great use in certain states both of arable and grass lands.

For the dairy, the most essential implements are, milk-pails, churns, milk-pans, cheese-shapes, cheese-tubs, and presses.

A variety of small implements for the barn, for the stable, and for the other offices, are necessary, but do not require a particular enumeration. The straw-cutter, the turnip-slicer, the bruising machine, for beans, pease, or oats, and the weighing machine are, however, too important to be omitted.

Size and shape of Fields.

The size and shape of fields are also deserving of attention: small fields and high hedges are, for arable lands and in level districts, very improper. They may however, be occasionally useful for particular purposes of the dairy or sheep farm, and in very exposed situations. In short, for corn lands, the larger the size of the fields, and the fewer the trees round them, the better, in general, the crop must succeed. But grazing lands admit, or even require shelter for the stock in winter, and in the summer shade.

Of Manures

We come next to the consideration of manures. Putrescent manures are the dung of quadrupeds, birds, town-dung, night soil, land animal substances, and fish. Farm yard dung forms one of the best and most valuable of all manures. The heap should stand in such a place that the water which runs from it may be preserved, and pumped back again upon it; or, which is a better practice, it should be pumped upon heaps of earth calculated to receive it. In too many farm yards, this valuable liquor is wasted. Stable dung is also an excellent manure. Town dung and night-soil are also valuable manures; night-soil is the richest of all manures, and if dry the cheapest; lime is also a very good manure; so also is every species of animal offal; and even bones, when pulverized.

The calcareous manures are also often of great utility. Lime freshly burnt, or slacked, forms a compost with vegetable matter, which is soluble in water, and nutritive to plants. Mild lime, as chalk, or quick lime, again impregnated with carbonic acid, chiefly operates, it has been supposed, by improving the texture of the soil, and its relation to absorption; but we are, however, of opinion, that the actual reason why lime is useful as a manure is at present unknown. Pounded limestone, lime-stone gravel, chalk, marls, sea-shells, soapers' waste, and gypsum, may also be used in given situations with advantage.

Earthy manures are, mould, or loam, peat earth, clay or sand, burnt clay, sea ooze, or warp, canal, pond, or river mud, and road scrapings.

Vegetable manures are, of course, numerous: the chief are, sea-weeds, fresh-water weeds, common weeds, malt dust, rape cake, tanners' bark, and burnt vegetables; such as wood-ashes, peat-ashes, kelp-ashes, and burnt straw.

Of miscellaneous articles of manure, common salt may be mentioned as of considerable importance, more especially since for such purpose, the government has rescinded a considerable part of the duty. Soot is also an excellent manure.

Of the Division of Land into Ridges.

In the cultivation of arable land, the first point to be considered is the utility of dividing the land into ridges, and the size and form in which they ought to be made.

Dry soils, being deficient in moisture, ought to be tilled flat, as any sort of draining which the furrows might afford, would be prejudicial rather than advantageous. But ridges are essential in wet soils and climates. The length of a ridge must vary according to the size of the field, the acclivity of the ground, and the nature of the soil, whether wet or dry. In fields of much acclivity, ridges of 150 yards are found of a convenient length. In wet soils, where the ground is flat, a ridge may be 240 or 300 yards long.

Relative to the width of ridges, great difference of opinion prevails; as a general maxim it may be laid down that, as in dry porous soils the ridges cannot be too broad, so, in wet clays, they cannot be too narrow. In addition to every other consideration, the breadth of the ridge must be regulated by the mode of culture. Where the broad-cast system is followed, the size must be such as to enable the sower to scatter the seed equally over the land; whereas, when the drill system is adopted, the breadth must be adjusted to the size of the machine. The ridges should always be made as straight as possible; and in wet land they should be well rounded, so as to form a segment of a circle, without being carried to so ridiculous an extreme, that two men standing in the furrows, cannot see each others heads.

The line of direction of ridges is, in steep grounds, of much consideration. From every practical observation, the best mode of tilling such ground, and laying out the ridges, is from the top of the bank sloping to the right. If there be soil enough, any ground, however steep, may be cultivated on this plan; it may be added, that if the ground will permit, the ridges should be directed north and south.

Of Ploughing, Harrowing, &c.

The simplest, the most economical, and perfect mode of *ploughing* for general purposes, is by a swing plough with a pair of horses, without a driver. In working with the two-horse swing plough, the off-side horse walks in the furrow already made; the near-side horse on the untilled land, the ploughman in the new furrow. The depth which land should be ploughed, must in some measure be regulated by the deepness of the soil. On thin soils, more especially on a substratum of rock, the ploughing must necessarily be shallow: but when the soil, whether light or strong, will admit of it, a furrow ought to be given as deep as a pair of horses can accomplish; and it is occasionally advantageous to plough it even with four horses at the commencement of every fresh rotation. Deep ploughing is advantageous on every soil, excepting those where the substratum is of an ochry sand. Deep ploughing is, however, to be avoided when lime or marl has been recently applied, where turnips have been eaten off by sheep, where grass only two or three years old is broken up; in all these cases from four to five inches deep will be found sufficient. And if land is infested with natural grasses, the first ploughing should not be deeper than is necessary to turn up the roots of the grasses that they may be destroyed. The advantages of deep ploughing are, however, various and great; one of the chief of which is, that of bringing up new mould to the surface. Another is, that as the soil will be loosened to a greater depth in wet seasons, this is of no trifling consideration; and in a dry season it is still more useful, forming as it were a reservoir of moisture.

In a word, deep ploughing is generally attended with good crops, and shallow ploughing frequently with indifferent ones.

The season of ploughing depends upon a variety of circumstances. In very dry, light land, ploughing should be carried on in damp weather. Tenacious soils ought to be ploughed when neither wet nor dry. And all corn stubbles, not having clover or other plants on them, should be ploughed as soon after harvest as possible, and thus be put into a state of receiving benefit from the winter frosts.

The system of *scarifying*, that is putting in crops without ploughing, appears to be coming into practice; and it is said that if one ploughing to the full depth be given once in twelve, eighteen, or twenty-four months, shallow tillage afterwards by scaling, scarifying, skuffling, skimming, or broad-sharing, is in many cases preferable to frequent deep working, and especially for wheat which loves a firm bottom. This doctrine is well entitled to the attention of the practical farmer.

Harrowing is also of essential use in the culture of arable lands. There are two modes of driving the harrows, either leading the horses, or driving them by whip reins. The latter is to be preferred for many reasons.

Rolling is also an operation of great importance: by this practice the strongest and most obdurate clods may be reduced, and the harrow and the scarifier enabled to tear out the roots of couch grass and other destructive weeds.

Treading after the seed is sown, is also a practice which has been strongly recommended. In some districts it is usual either to fold the sheep on the ground sown with wheat, between the sowing and the coming up of the crop, or to drive the flock repeatedly over it at that juncture. By these means wheat may be raised on land naturally too loose for the profitable production of it. Some farmers, however, prefer pigs for this purpose; and in West Sussex, the lighter soils in dry seasons are trod by the plough horses, three being placed a-breast when turning the seed furrow. Treading is unquestionably more effectual than rolling in destroying the larvæ of insects, and preventing the harbouring of vermin in the soil; it has also some other advantages. But it is most applicable to dry light soils; but even in wet ones, when the land cannot be rolled, it may be trodden by sheep.

Choice of Seeds.

With respect to the choice of seed, although blighted grain will vegetate, and in rich soils and favourable seasons, may produce abundant harvests, yet the prudent farmer ought not to rely upon the chance of such an event. When domestic seed is relied on, it is an excellent practice to select from the growing crops the ears which are soonest ripe, and which are of the plumpest quality;

by this means the produce of a farm may be greatly improved.

A change of seed is in general to be recommended, as founded on rational principles; for every species of grain has a climate adapted to it, where it flourishes, where it grows to perfection, and where it never degenerates. In Sicily, where wheat grows naturally, the seed dropping from the mother plant arrives at perfection, though neither that nor the soil be changed. But wheat is not a native of this country, and here it degenerates rapidly if the seed be sown year after year where it is produced. It is not therefore, sufficient that the seed be taken from a different field, it ought to be taken from a different soil, and from a different atmosphere.

The quantity of seed per acre requires considerable attention. On light thin soils, the quantity of seed ought to be moderate; whereas in strong stiff wet retentive soils, a large proportion of seed will be necessary. Seed sown early, takes deeper root, and has more time to branch out additional shoots than that which is late sown, consequently a less quantity is sufficient. The state of the weather when the seed is put into the ground must likewise be considered: for when the season is very dry, more of the seed may fail to vegetate than when the contrary is the case. Hence a large quantity is required; and hence the propriety of steeping and putting in the seed in dry seasons immediately after the plough. The manner of sowing must also regulate the quantity to be sown: broadcast requires more than either drilling or dibbling.

Of Crops.

Till the middle of last century, the best common courses of farming in Britain, consisted of a fallow, which, by several ploughings, broke up and cleaned the ground, but left the soil exposed to the scorching rays of the sun, during the hottest season, without any shading crop; and on this the farmer sowed wheat, which was succeeded by peas or beans; then followed barley, or oats (or both) on one part of the farm, for the space of ten or twenty years: the other moiety, during that time, being laid out in common pasture grasses. When any change was to be made, the part in grass was ploughed and prepared, and then thrown into the same course or rotation of crops as above: that which had been in crops, was sown with mixed grass-seeds (but not clover), to lie for ten or twenty years, as before. The whole arable part of the farm thus parcelled, included neither the homestead nor the standing meadow; so that an arable farm of 300 acres admitted of 150 being in grass lay, or old field, and 150 in crops. The fields which bore crops, were seldom equal in quantity, but in the following plan we have ventured to consider them so, for the better comparing of the old and new systems:

No. I.

Acres.		*Bushels.*
37½	fallow, naked, yields nothing	
37½	wheat - - -	555
37½	peas, or beans - -	555
37½	barley - - -	740
150	in crops, 4 fields - -	1850
150	in grass, or lay	
300	acres.	

The fallow, wheat, and barley crops, are exhausting, that is, they deprive the land, by exhalation, of part of the vegetable nutriment deposited in it; the peas, or beans, which operate as a manure, ameliorate; but the rays of the sun on the naked soil, in the hot season, cause a considerable portion of the essence of the manure, and also of the ground, gradually to exhale.

The new system of rotation or courses of crops, was introduced about the middle of the 18th century, and is founded on the following principles, namely; 1. To fallow, and at the same time to have a shading and ameliorating mild crop growing on the fallow, while it is under the plough or hoe; 2. Never to sow any species of corn in succession; 3. To sow clover, or an equivalent on every field of small grain; and lastly, by means of a course of well selected crops, to prevent the soil from resting, hardening, and running into weeds.

By this method, entire farms are continued in a constant rotation under four, six, or eight divisions, or fields, in such a manner as to improve the soil, and consequently to produce a larger income.

No. II.

Acres.	*Bushels.*
60 barley - - -	1200
60 clover - - -	
60 wheat - - -	900
60 clover - - -	
60 peas, or beans - -	900
	3000
300 acres, in 5 fields.	

According to this new course, the wheat and barley exhaust the soil, while the clover and peas, or beans, ameliorate and improve it.

When we compare these two systems of rotations of crops, the latter is evidently the most profitable, as the 120 acres in clover are far superior to the 150 acres of common grasses on the hide-bound soil of the lay, or old field; and the grain and straw are more advantageous, in the proportion of 300 to 185. Clover, peas, and beans (if sown in drills, and kept clean from weeds by hoeing), are inoffensive, and even ameliorating.—They all shade the ground during the hottest season of the year. Every kind of corn impoverishes the soil, and, if small, lets in weeds, which, together with rest, bind and foul the land.

The superiority of the new course of crops is still farther evinced, by a series of conclusive experiments made by Mr. A. Young. He divided 3 acres of old upland pasture into 36 squares, of 9 roods each, which he planted with beans, peas, wheat, barley, oats, cabbages, clover, potatoes, &c. in different rotations, with various success. From these comparative trials he drew the following practical inferences, which we recommend to the serious attention of our agricultural readers:

1. That potatoes exhaust the land more than any other fallow crop hitherto tried; and, in some courses, to a greater degree than barley, or even wheat.

2. That potatoes will not yield a tolerable crop, even on old lay newly broken up, without the aid of dung, and not a profitable one, even with it.

3. That barley, beans, and oats, succeed much better than wheat, after potatoes.

4. That beans are the most valuable fallow crop on new land of this quality.

5. That the preservation of the fertility of old turf depends much on the number of bean-crops introduced; as, the more frequently they are planted, the better the succeeding crops of white corn will be: and three successive years of beans are attended with an extraordinary produce of wheat.

6. That beans and barley, and beans and wheat, alternately, are both courses of great produce and advantage.

7. That the introduction of beans, in bad rotations, tends to remedy the evil of such courses.

8. That successive crops of white corn destroy that fertility, which different rotations will preserve in new ground; and that three such crops will render the land extremely foul and unprofitable.

9. That the two most productive courses are beans and barley, alternately; the former being the most abundant, but the latter the most profitable, from the saving o tillage.

10. That four crops of beans, and one of wheat, even

with the drawback of one year's cabbages, is the third course in profit; and the land will be left in such order, as to make it perhaps the first.

11. That the most unproductive, and in a still greater degree, the more unprofitable courses, are those in which turnips, cabbages, and potatoes most frequently occur.

12. That, on such new land, oats are the best white grain that can be sown, as they yield very extraordinary and valuable crops.

The same intelligent cultivator, consequently, recommends the following course, which is calculated to prove the most profitable:

1. Beans.
2. Oats.
3. Beans.
4. Oats.
5. Beans.
6. Oats.
7. Clover.
8. Beans.
9. Wheat

The profit of beans in every rotation, by which the soil is not exhausted, is decisive; and oats are far more productive than either barley or wheat, while the old turf is decaying; because clover will revive the fertility, which beans in the 8th year will not lessen; and wheat cannot fail, after those two successive ameliorating crops, to yield a plentiful harvest. In justice to Mr. Young, we shall observe, that he proposes such a rotation only for new land, as there are circumstances that would render it inapplicable to other fields.

Diseases of Wheat.

Wheat is subject to more diseases than other grains, and in some seasons, especially in wet ones, heavier losses are sustained from those diseases, than are felt in the culture of any other culmiferous crop with which we are acquainted. Wheat may suffer from the attack of insects at the root; from blight, which primarily affects the leaf or straw, and ultimately deprives the grain of sufficient nourishment; from mildew on the ear, which operates thereon with the force of an apoplectic stroke; and from gum of different shades, which lodges on the chaff or cups in which the grain is deposited.

Blight.

Blight originates from moist or foggy weather, and from hoar-frost, the effects of which, when expelled by a hot sun, are first discernible on the straw, and afterwards on the ear, in a greater or less degree, according to local circumstances. Let a field be examined in a day or two after such weather, and a careful observer will soon be satisfied, that the fibres and leaves of the plants are contracted and enfeebled, in consequence of what may be called a stoppage of perspiration. This disorder may take place either earlier or later, but is most fatal when it appears at the time the grain is forming in the ear. It may appear at an earlier stage; and though the productive powers of the plant will thereby be lessened, yet, if circumstances are afterwards favourable, the quality of the grain produced may not be much impaired; or it may appear after the grain is fully formed, and then very little damage will be sustained, except by the straw.

Mildew.

Mildew, may be ranked as a disease which affects the ear, and is brought on by causes somewhat similar to those which occasion blight, though at a more advanced period of the season. If this disorder comes on immediately after the first appearance of the ear, the straw will also be affected; but if the grain is nearly or fully formed, then injury on the straw is not much discernible. We have seen a crop which carried wheat that was mildewed, where the straw was perfectly fresh, though, indeed, this rarely happens. A severe mildew, however, effectually prevents both corn and straw from making any further progress, the whole plant apparently going backward every day, till existence in a manner ceases altogether. Something akin to mildew is the gum or red oaker, which, in all warm moist seasons, attaches itself to the car, and often occasions considerable damage. All these different disorders are generally accompanied by insects; which animalculæ, by many people who take the effect for the cause, are considered, though without the least foundation, as the authors of the mischief that follows. Their appearance, however, may justly be attributed to the diseased state o. the plant; for wherever putrefaction takes place, either in animal or vegetable substances, the presence of these insects will never be wanting.

Rust.

Another disorder which affects wheat, and by several people denominated the real rust, is brought on by excessive heats, which occasion the plants to suffer from a privation of nourishment, and become sickly and feeble. In this atrophical state, a kind of dust gathers on the stalk and leaves, which increases with the disease, till the plant is in a great measure worn out and exhausted. The only remedy in this case, and it is one that cannot easily be administered by the hand of man, is a plentiful supply of moisture, by which, if it is received before consumption is too far advanced, the crop is benefited in a degree proportional to the extent of nourishment received, and the stage at which the disease has arrived.

Impropriety of sowing mildewed Wheat.

Some people have recommended the sowing of blighted and mildewed wheat, because it will vegetate; though certainly the recommendation, if carried into practice, would be attended with imminent danger to those who attempted it. That light or defective wheat will vegetate and produce a plant, we are not disposed to contradict; but that it will vegetate as briskly, or put out a stem of equal strength, and capable of withstanding the severe winter blasts, as those produced from sound seed, we must be excused for not believing. Let it only be considered, that a plant of young wheat, unless when very early sown, lives three or four months, in a great measure, upon the nourishment which it derives from the parent seed; and that such nourishment can, in no view of the subject, be so great when the parent is lean and emaciated, as when sound, healthy, and vigorous. Let it also be remembered, that a plant produced from the best and weightiest seed, must, in every case, under a parity of other circumstances, have a stronger constitution at the outset, which necessarily qualifies it to push on with greater energy when the season of growth arrives. Indeed, the economy of nature would be overturned, had any other result followed. A breeder of cattle or sheep would not act more foolishly, who trusted that a deformed diminutive bull or ram would produce him good stock, than the corn farmer does who uses unsound or imperfect seed.

To remove the mildew on Wheat.

A solution of common salt in water, in the proportion of a pound to a gallon, is an excellent remedy for the mildew on corn. After sprinkling three or four days, the mildew will disappear, leaving only a discolouration on the straw where it was destroyed. The best and most expeditious way of applying the mixture is with a flat brush, such as is used by whitewashers. The operator having a pail of the mixture in one hand, with the other he dips the brush into it, and makes his regular casts as when sowing corn broad-cast; in this way he will readily get over ten acres in the day, and with an assistant a great deal more. About two hogsheads of the mixture will suffice for an acre. Wherever the mixture touches, the mildew immediately dies.

To prevent mildew in Wheat.

Dissolve three ounces and two drachms of sulphate of copper, copperas, or blue vitriol, in three gallons and three quarts, wine measure, of cold water, for every three bushels of grain that is to be prepared. Into another vessel capable of containing from 53 to 79 wine gallons, throw from three to four Winchester bushels of wheat, into which the prepared liquid is poured, until it rises five or six inches above the corn. Stir it thoroughly; and carefully remove all that swims on the surface. After it has remained half an hour in the preparation, throw the wheat into a basket that will allow the water to escape, but not the grain. It ought then to be immediately washed in rain, or pure water, which will prevent any risk of its injuring the germ; and afterwards the seed ought to be dried before it is sown. It may be preserved in this shape for months.

To prevent the Smut in Wheat.

Liming the seed by immersion is recommended by a French writer, as the only preventive warranted by science and sanctioned by experience, and the following is given as the method in which the process is best performed:

To destroy the germs of the blight in four and a half bushels or 256 pounds of corn, about six or seven gallons of water must be used, as grain may be more or less dry, and from 35 to 42 ounces avoirdupoise of quick lime, according as it may be more or less caustic, and according as the seed may have more or less of the blight. Boil part of the water, black the lime with it; and then add the rest. When joined, the heat of the water should be such, that the hand can with difficulty bear it. Pour the lime water upon the corn placed in a tub, stirring it incessantly, first with a stick, and afterwards with a shovel. The liquid should, at first, cover the wheat, three or four fingers' breadth; it will soon be absorbed by the grain. In this state let it remain covered over for twenty-four hours, but turn it over five or six times during the day. Such parts of the liquor as will drain off, may then be separated, when the corn, after standing a few hours, in order that it may run freely out of the hand, may be sown. If not intended to be used immediately, the limed wheat should be put in a heap, and moved once or twice a day till dry. Experience has proved that limed grain germinates sooner than unlimed; and as it carries with it moisture sufficient to develope the embryo, the seed will not suffer for want of rain; insects will not attack it, the acrid taste of the lime being offensive to them; and as every grain germinates, a less quantity is requisite. In fact, the grain being swelled, the sower filling his hand as usual, will, when he has sown 65 handsful of limed corn, have, in reality, only used 52. As blighted grains preserve, for a long time, the power of germinating, the careful farmer, whose grain has been touched, should carefully sweep out the crevices in the walls, and cracks in the floors of his barn, and take great pains to clean them thoroughly.

Best method of Hay-making.

Instead of allowing the hay to lie, as usual in most places, for some days in the swathe after it is cut, never cut hay but when the grass is quite dry: and then make the gatherers follow close upon the cutters; put it up immediately into small cocks about three feet high each, and of as small a diameter as they can be made to stand with; always giving each of them a slight kind of thatching, by drawing a few handsful of the hay from the bottom of the cock all round, and laying it lightly upon the top, with one of the ends hanging downwards. This is done with the utmost ease and expedition; and when once in that state, the hay is, in a great measure, out of danger; for unless a violent wind should arise immediately after the cocks are put up, nothing else can hurt the hay; as no rain, however violent, can penetrate into these cocks but for a very little way; and if they are dry put up, they never sit together so closely as to heat; although they acquire, in a day or two, such a degree of firmness, as to be in no danger of being overturned by wind after that time, unless it blows a hurricane.

In these cocks allow the hay to remain until, upon inspection, the farmer judges it will keep in pretty large tramp-cocks (which is usually in a week or two), according as the weather is more or less favourable, when two men, each with a long-pronged pitchfork, lift up one of these small cocks between them with the greatest ease, and carry them one after another, to the place where the tramp-cocks is to be built: and in this manner proceed over the field, till the whole is finished.

To drain Lands.

Wherever a burst of water appears in any particular spot, the sure and certain way of getting quit of such an evil is to dig hollow drains, to such a depth below the surface as is required by the fall or level that can be gained, and by the quantity of water expected to proceed from the burst or spring. Having ascertained the extent of water to be carried off, taken the necessary levels, and cleared a mouth, or leading passage for the water, begin the drain at the extremity next to that leader, and go on with the work till the top of the spring is touched, which probably will accomplish the intended object. But if it should not be completely accomplished, run off from the main drain with such a number of branches, as may be required to intercept the water, and, in this way, disappointment will hardly be experienced. Drains to be substantially useful, should seldom be less than three feet in depth, twenty or twenty-four inches thereof to be close packed with stones or wood, according to circumstances. The former are the best materials, but in many places are not to be got in sufficient quantities; recourse therefore must often be made to the latter, though not so effectual or durable.

It is of vast importance to fill up drains as fast as they are dug out; because, if left open for any length of time, the earth is not only apt to fall in, but the sides get into a broken irregular state, which cannot afterwards be completely rectified. It also deserves attention, that a proper covering of straw or sod should be put upon the top of the materials, to keep the surface earth from mixing with them; and where wood is the material used for filling up, a double degree of attention is necessary, otherwise the proposed improvement may be effectually frustrated.

Great advantages of Ploughing with Oxen instead of Horses.

A team of four young horses will frequently cost a hundred or a hundred and twenty guineas, and in six or seven years time will be mere jades; whereas, on the other hand, a much less sum will purchase four capital six-year old oxen, which, after they have worked five or six years, and have been kept at two third of the expense of horses, will fetch as much or more than their first cost.

Remark.—The advantage of preferring oxen to horses, however, is disputed by the most eminent practical farmers. The principal point is, that the profit of a farmer, particularly in bad seasons, often depends on the getting his work done within a given time. In emergencies, a horse may be fed up to almost any work. But an ox, however fed, will sink under his labour, if tasked beyond his ordinary rate. The former does not lose his half-worked horses, for there is a demand for them by higglers, petty carriers, and others, to whom of course he sells them when they become less fit than at first for his more severe work. The argument is stated as fully, and perhaps as temperately, in the article "Agriculture," in the Edinburgh Encyclopædia," as in any other place. It is too long for this volume.

Useful Hints relative to Carters and Teams of Oxen.

Do not retard the growth of your beasts of draft, endanger their health, render them insignificant in the eyes of the many, and disgustful to their keepers, by working them too young. There is no danger of their becoming unmanageable; nose rings will reclaim them, be they ever so riotous; nevertheless, the younger they are inured to light work, the more docile they will generally become.

Do not expect that they can work constantly on straw, nor expect to find them alert and spirited, while their buttocks are clodded with dung, and their coats throughout are filled with dirt and vermin.

Divide them into teams of four; let each team be fed by its respective carter. To give the man consequence with his fellow-servants, provide him with a currycomb lacquered on the back, and a brush bound with gilt leather. With these he will take a delight in combing off the dirt, and brushing out the dust and filth. The ox, too, after the sensation becomes familiar, partakes in the pleasure, and will momentarily forego his meal to receive the full enjoyment. His feeder perceives this, and brushes the part which gives the most pleasure. The ox shews his gratitude by wagging his tail; the carter, in return. calls him by his name, and ingratiates himself with him. Thus, not only an intimacy but a mutual affection is formed, which at once gives attention to the keeper, and docility to the ox, and renders the labour of both pleasant.

A good carter feeds his cattle early and late, and by little and little, being careful not to give more at once than they will eat immediately.

Their labour and their fodder ought to be so proportioned, their health and their spirits are kept in full tone. Their coats ought to be sleek; their hides loose and silky; the flank should fill the hand; and the shoulder handle mellow. If they be overworked or under fed, disease and sluggishness must inevitably follow. A working ox ought always to be beef, that, in case of accident, he may grace, at least, the poor man's table.

If oxen be introduced into a horse-team country, not only attention, but some address is necessary.

When to cut Rye-Grass for Hay.

Rye-grass, if mown for hay, should be cut when in blossom, and not green. The hay made from it does not heat or sweat so much, and is very good for horses, but not for sheep and cattle. If it is suffered to stand too long before it is cut, the seed rob the plant of their juices, and leave it no better than wheat or rye straw.

To prevent Hay-stacks from taking Fire.

When there is any reason to fear that the hay which is intended to be housed or stacked, is not sufficiently dry, it is only necessary to scatter a few handfuls of common salt (muriate of soda) between each layer. It would be very ill-judged to regret this trifling expense; for the salt, by absorbing the humidity of the hay, not only prevents the fermentation and consequent inflammation of it, but it also adds a taste to this forage, which stimulates the appetites of cattle, assists their digestion, and preserves them from many diseases.

Remark.—The cattle like a little salt, but it has little effect in preventing inflammation.

Fertilizing Steeps for Turnips, Wheat, or Barley.

Steep turnip-seed twelve hours in train oil, which strain through a fine sieve, and immediately thoroughly mix the quantity of seed you would wish to sow on an acre, with three bushels of dry loamy earth, finely sifted, which drill (or sow) as soon as possible; and when the plants begin to appear, throw a small quantity of soot over them.

Steep for Wheat, Barley, or other Grain.

Put a peck and a half of wood ashes, and a peck of unslacked lime, into a tub that will hold forty gallons; then add as much water as will slake the lime, and render the mixture into the consistence of stiff mortar. In this state it should remain ten or twelve hours; then add as much water as will reduce the mortar to a pulp by thorough stirring. In this state fill the tub with water, and occasionally keep stirring for two or three days. After which, draw off the clear lye into an open vessel, and gradually put the grain into it: skim off the light grains; and after the corn has been steeped three hours, spread it on a clean floor to dry, when it will be sufficiently prepared for drilling or sowing. The lye will retain its full virtue, and may be repeatedly used.

Remark.—It has been doubted whether steeps are of any use, except so far as they facilitate the separation of the light grain, and wash off the seeds of the parasite plants, which are thought to occasion smut, &c. In the best cultivated parts of Scotland, seed wheat is steeped in stale urine, or in a brine made with common salt, which, by increasing the specific gravity of the water, floats the unsound grains. The seed is well washed, and then dried by mixing it with fresh slacked lime, and rubbing it briskly with a wooden shovel. The quick lime and rubbing is thought to assist in cleansing the seed; but, independent of that, the mere drying the seed quickly is convenient.

To sow Wheat to advantage, without laying on Manure.

It has been found expedient sometimes to sow wheat without laying on any manure; and, in the beginning of February, to collect twenty bushels of lime, unslacked, for every acre, and forty bushels of sand, or the rubbish of a brick-kiln; then, about the end of the month, to slake the lime, which doubles the measure, and mix it well with the sand, and immediately afterwards to scatter it by way of top-dressing over the green wheat. As rain generally succeeds, it is soon washed down to the roots of the plants, and gives them a vigour and strength, which, to those who never made the experiment, is astonishing.—The lime, sand, and rubbish, are particularly useful in breaking the tenacity of stiff clays. In a clay soil, where coal was very cheap, the clay was slightly burned in the field, and spread over the surface, as the cheapest way of subduing the coarseness and stiffness of the soil. The refuse or rubbish from mines in the neighbourhood has been burned, and applied with advantage on the same principle.

Great Utility of sowing Buck-Wheat.

In light lands buck-wheat may be raised to great advantage, as a lucrative crop. When green it is a fine feed for milch-kine, and when ploughed is a fine preparation for the land. It fattens pigs with great economy, and, passed through the mill, is, with carrot, a capital feed for work horses. The seed is excellent food for poultry, and when ground makes good bread.

To keep Crows from Corn.

Take a quart of train oil, as much turpentine and gunpowder, boil them together, and, when hot, dip pieces of rags in the mixture, and fix them on sticks in the field. About four are sufficient for an acre of corn.

Proper Soil for the Culture of Turnips.

Sandy loams, in good heart, are most favourable to their growth, though they will thrive well on strong loams, if they are not wet; but on clayey, thin, or wet soils, they are not worth cultivating; for though a good crop may be raised on such ground, when well prepared and dunged, more damage is done by taking off the turnips in winter, in poaching the soil, than the value of the crop will repay.

Instructions for raising Potatoes to Advantage.

The earth should be dug twelve inches deep, if the soil will allow it; after this, a hole should be opened about six inches deep, and horse dung, or long litter, should be put therein, about three inches thick; this hole should not be more than twelve inches diameter. Upon this dung or litter, a potatoe should be planted whole, upon which a little more dung should be shaken, and then the earth must be put thereon. In like manner the whole plot of ground must be planted, taking care that the potatoes be at least sixteen inches apart. When the young shoots make their appearance they should have fresh mould drawn round them with a hoe; and if the tender shoots are covered, it will prevent the frost from injuring them; they should again be earthed when the shoots make a second appearance, but not covered, as, in all probability, the season will be less severe.

A plentiful supply of mould should be given them; and the person who performs this business should never tread upon the plant, or the hillock that is raised round it, as the lighter the earth is the more room the potatoe will have to expand.

A gentleman obtained from a single root, thus planted, very near forty pounds weight of large potatoes; and, from almost every other root upon the same plot of ground, from fifteen to twenty pounds weight; and, except the soil be stony or gravelly, ten pounds, or half a peck, of potatoes may almost be obtained from each root, by pursuing the foregoing method.

To preserve Corn in Sacks.

Provide a reed cane, or other hollow stick, made so by gluing together two grooved sticks; let it be about three feet nine inches long; and that it may be the easier thrust down to the bottom of the corn in the sack, its end to be made to taper to a point, by a wooden plug that is fixed in, and stops the orifice. About one hundred and fifty small holes, of one eighth of an inch in diameter, are to be bored on all sides of the stick, from its bottom for about two feet ten inches of its length; but no nearer to the surface of the corn, lest too great a proportion of the air should escape there. By winding a pack-thread in a spiral form round the stick, the boring of the holes may be the better regulated, so as to have them about half an inch distant towards the bottom, but gradually at wider distances, so as to be an inch asunder at the upper part; by which means the lower part of the corn will have its due proportion of fresh air. To the top of the stick let there be fixed a leathern pipe ten inches long; which pipe is to be distended by two yards of spiral wire, coiled up within it. At the upper part of the pipe is fixed a taper wooden fasset, into which the nose of a common household bellows is to be put, in order to ventilate the corn.

If corn, when first put into sacks, be thus aired, every other or third day, for ten or fifteen minutes, its damp sweats which would hurt it, will, in a few weeks, be carried off to such a degree, that it will afterwards keep sweet with very little airing, as has been found by experience.

By the same means other kinds of seeds, as well as corn, may be kept sweet either in sacks or small bins.

To preserve Oats from being musty.

Richard Fermor, Esq. of Tusmore, in Oxfordshire, has, in his stable, a contrivance to let oats down from a loft out of a vessel, like the hopper of a mill, whence they fall into a square pipe, let into a wall, about four inches diagonal, which comes into a cupboard set into a wall, but with its end so near the bottom, that there shall never be above a desirable quantity in the cupboard at a time, which being taken away, another parcel succeeds; by this motion the oats are kept constantly sweet, (the taking away one gallon moving the whole above) which, when laid up otherwise in great quantities, frequently grow musty.

Easy Method of destroying Mites or Weevils in Granaries.

A very sagacious farmer has succeeded in destroying weevils by a very easy process. In the month of June, when his granaries were all empty, he collected great quantities of the largest sized ants, and scattered them about the places infested with the weevils. The ants immediately fell upon and devoured every one of them; nor have any weevils since that time been seen on his premises.

Remark.—The large, or wood ant, feeds entirely on animal substances, of course it would not destroy the corn.

To preserve Carrots, Parsnips, and Beets, all the Winter.

A little before the frost sets in, draw your beets or parsnips out of the ground, and lay them in the house, burying their roots in sand to the neck of the plant, and ranging them one by another in a shelving position; then another bed of sand, and another of beets, and continue this order to the last. By pursuing this method, they will keep very fresh. When they are wanted for use, draw them as they stand, not out of the middle or sides.

To preserve Turnips from Frost.

The best way is to stack them up in straw in the following manner:—One load of any sort of dry straw is sufficient for an acre of fifty tons weight. Pull up the turnips, top and tail them, then throw them in a sort of windrow, and let them lie a few days to dry.

First, lay a layer of straw next the ground, and upon it a layer of turnips about half a yard thick; then another layer of straw; so go on alternately with a layer of straw and a layer of turnips; every layer grows narrower, till it comes to a point at the top, like a sugar loaf. The last layer must be straw, which serves to keep all dry. You must observe always, when you have laid a layer of turnips, to stroke or lap over the ends of the under layer of straw, in order to keep them close or from tumbling out. The heap should be as large as a hay-cock; the tops may be given to sheep or cattle as they are cut off.

Methods of stopping the Ravages of the Caterpillars from Shrubs, Plants, and Vegetables.

Take a chafing-dish, with lighted charcoal, and place it under the branches of the tree, or bush, whereon are the caterpillars; then throw a little brimstone on the coals. The vapour of the sulphur, which is mortal to these insects, and the suffocating fixed air arising from the charcoal, will not only destroy all that are on the tree, but will effectually prevent the shrubs from being, that season, infested with them. A pound of sulphur will clear as many trees as grow on several acres.

Another method of driving these insects off fruit-trees, is to boil together a quantity of rue, worm-wood, and common tobacco (of each equal parts), in common water. The liquor should be very strong. Sprinkle this on the leaves and young branches every morning and evening during the time the fruit is ripening.

In the Economical Journal of France, the following method of guarding cabbages from the depredations of caterpillars is stated to be infallible, and may, perhaps, be equally serviceable against those which infest other vegetables. Sow with hemp all the borders of the ground wherein the cabbage is planted; and, although the neighbourhood be infested with caterpillars, the space enclosed by the hemp will be perfectly free, and not one of these vermin will approach it.

Dairy-House.

A dairy ought to be so situated, that the windows, or lattices, may never front the south, south-east, or south-west; and it should at all times be kept in the neatest order. Lattices are also far preferable to glazed lights, as they admit a free circulation of the air. It has, however, been objected, that the former afford access to the cold air of winter, and to the sun in summer; but either may be easily remedied, by making the frame somewhat larger than the lattice, and constructing it so as to slide backward and forward at pleasure. Across this frame, packthread may be stretched, and oiled paper pasted on it, which will thus admit the light, and effectually keep out the sun and wind.

During the summer, dairy-houses cannot be kept too cool: they ought therefore to be erected, if possible, near a cold spring, or running water; and, where it is practicable to conduct a small stream through the premises, it will much contribute to the convenience and utility of the place. Dr. Anderson observes, in his practical essay on the management of the dairy, that, if the water can be introduced by means of a pipe, so as to fall from some height on the floor, it will be productive of many advantages, particularly by preserving a continual freshness, and purity of the air. Dairy-houses should therefore be neatly paved, either with red brick, or smooth hard stone, and laid with a proper descent, so that no water may stagnate. This pavement should be well washed every day during the summer; and all the utensils, here employed, be kept with unremitting attention to cleanliness. Nor should the churns be at any time scalded in the dairy; as the steam arising from hot water, tends greatly to injure the milk.

For similar reasons, neither the cheese and rennet, nor the cheese-press, must be suffered to taint the atmosphere; as the whey and curd will diffuse their acidity over the whole building.

Dairy Utensils.

All the utensils of the dairy should be made of wood, in preference either to lead, copper, or cast-iron; for these metals are easily soluble in acids; the solutions of the two first are in a high degree poisonous; and, though the latter is in itself harmless, the taste of it renders the productions of the dairy very disagreeable. The cream-dishes, when perfectly clean and cool, ought to be filled with the milk, as soon as it is drawn from the cow, and has been carefully strained through a cloth, or cloth-sieve, made of hair, or silver-wire; the latter of which, as Dr. Anderson justly remarks, is more wholesome than those of other metals. These dishes should never exceed three inches in depth, but may be so wide as to contain a gallon, or a gallon and a half of milk:—when filled, they ought to be placed on shelves, to remain there till the cream be completely separated. Now it is to be taken off with nicety, by a skimming-dish (without lifting or removing the milk, or shedding any of it on the floor, which would soon corrupt the air of the room), and then deposited in a separate vessel, till a proper quantity be collected for churning. A firm, neat wooden barrel, which is open at one end, and has a lid closely fitted to it, appears to be well calculated for this purpose; a cock or spigot, ought also to be fixed near the bottom, to draw off the thin, or serous part, that may drain from the cream; and the inner side of the opening should be covered with a piece of fine silver wire-gauze, in order to prevent the latter from escaping, while the former is allowed to pass.

But, if notwithstanding the fatal consequences arising from the use of metallic utensils, or of earthen vessels glazed with lead, farmers still persist in employing them, it ought to be a constant and indispensable rule, to scald and scour them properly with salt and water, every day, and to dry them thoroughly, before the milk is deposited in them. Lastly, it is sincerely to be wished, that all the utensils employed in the dairy, of whatever materials they may consist, should be cleaned with similar care, previously to their being used; and, as long as the least acid smell is perceptible, they ought to undergo repeated scourings, till they are completely sweetened.

Rules for milking Cows.

Cows should be milked three times a day, if fully fed, throughout the summer; and great caution should be exercised by the persons employed, to draw the milk from them completely, not only to increase the quantity of produce, but to preserve its quality. Any portion which may be left in the udder seems gradually to be absorbed into the system, and no more is formed than enough to supply the loss of what is taken away; and, by the continuance of the same mode, a yet farther diminution of the secretion takes place, until at length scarcely any is produced. This last mode of milking is always practised when it is intended that a cow should be rendered dry.

Method of making excellent Butter from the Milk of Cows fed upon Turnips.

Let the bowls, either lead or wood, be kept constantly clean, and well scalded with boiling water, before using. When the milk is brought into the dairy, to every eight quarts mix one quart of boiling water; then put up the milk into the bowls to stand for cream. By keeping strictly to this method, you will have, during the winter, constantly sweet and well-tasted butter from the milk of cows fed upon turnips.

Improved Method of making Butter.

If the dairy consists of three or four cows, they should be milked in the summer thrice a-day; in the morning, at noon, and in the evening. Each milking must be kept by itself, in flat wooden vessels, to cool in like manner; and thus in succession for two or three days, according to the temperature of the air, the milk thickening, and thence is fit for churning, soonest in the warmest weather. The quantity of butter will be generally in the proportion of a pound (twenty-two ounces) for each ten pints, or five English gallons of milk. In winter the cows are to be milked only twice a-day, and the milk is to be put into the churn warm from the cow, where it must stand a day or two longer than in summer, before it becomes sufficiently thick; although to promote the coagulation, it is sometimes brought near the kitchen fire, particularly on the preceding night before it is churned; and, in intense cold, it will be necessary to add a small quantity of boiling water. The operation of churning is performed with the plunge churn, from two to three hours, for thirty or forty pints of milk; and at the last stage of the process, a little cold water thrown in has the effect of promoting the separation of the butter from the milk, and making it twice a-day: and even before the cloth is taken off, the top and bottom are well rubbed every day.

N. B.—The dairy-maid must not be disheartened if she does not succeed perfectly in her first attempt.

Method of keeping Milk and Butter.

The pernicious method of keeping milk in leaden vessels, and salting butter in stone jars, begins to gain ground in this country, as well as elsewhere, from an idea of cleanliness. The fact is, it is just the reverse of cleanliness; for, in the hands of a careful person, nothing can be more cleanly than wooden dishes, but under the management of a slattern, they discover the secret, which stone dishes do not.

In return, these latter communicate to the butter, and the milk, which has been kept in them, a poisonous quality, which inevitably proves destructive to the human constitution. To the prevalence of this practice, I have no doubt (says Dr. Anderson) we must attribute the frequency of palsies, which begin to prevail so much in this kingdom; for the well-known effect of the poison of lead is, bodily debility, palsy—death.

Directions to the Dairy Maid.

Go to the cow-stall at seven o'clock; take with you cold water and a sponge, and wash each cow's udder clean before milking; dowse the udder well with cold water, winter and summer, as it braces, and repels heats. Keep your hands and arms clean. Milk each cow as dry as you can, morning and evening, and when you milk each cow as you suppose dry, begin again with the cow you first milked, and drip them each; for the principal reason of cows failing in their milk is from negligence in not milking the cow dry, particularly at the time the calf is taken from the cow. Suffer no one to milk a cow but yourself, and have no gossiping in the stall. Every Saturday night give in an exact account of the quantity of milk each cow has given in the week.

To choose a Milch Cow.

As to a choice of breeds for a private family, none in in England (says Mr. Lawrence), probably combine so many advantages as the Suffolk dun-cows. They excel both in quantity and quality of milk; they feed well after they become barren; they are small-sized, and polled or hornless; the last a great convenience. The horns of cows which butt and gore others, should be immediately broad tipped. There is a breed of polled Yorkshire or

Holderness cows, some of them of middling size, great milkers, and well adapted to the use of families, where a great quantity of milk is required, and where price is no object, and food in plenty. If richer milk and a comparison of the two famous breeds be desired, one of each may be selected, namely, the last mentioned, and the other of the midland county, or long-horned species. Colour is so far no object, that neither a good cow nor a good horse can be of a bad colour: nevertheless, in an ornamental view, the sheeted and pied stock of the Yorkshire short-horns, make a picturesque figure in the grounds.

The Alderney cows yield rich milk upon less food than larger stock, but are seldom rich milkers, and are particularly scanty of produce in the winter season. They are, besides, worth little or nothing as barreners, not only on account of their small size, but their inaptitude to take on fat, and the ordinary quality of their beef.

To determine the Economy of a Cow.

The annual consumption of food per cow, if turned to grass, is from one acre to an acre and a half in the summer, and from a ton to a ton and a half of hay in the winter. A cow may be allowed two pecks of carrots per day. The grass being cut and carried, will economize it full one-third. The annual product of a good fair dairy cow, during several months after calving, and either in summer or winter, if duly fed and kept in the latter season, will be an average of seven pounds of butter, per week, from five to three gallons of milk per day. Afterwards, a weekly average of three or four pounds of butter from barely half the quantity of milk. It depends on the constitution of the cow, how nearly she may be milked to the time of her calving, some giving good milk until within a week or two of that period, others requiring to be dried eight or nine weeks previously. I have heard (says Mr. Lawrence) of 20 lbs. of butter, and even 22 lbs., made from the milk of one long horned cow in seven days; but I have never been fortunate enough to obtain one that would produce more than 12 lbs. per week, although I have had a Yorkshire cow which milked seven gallons per day, yet never made five pounds of butter in one week. On the average, three gallons of good milk will make one pound of butter.

Of Rearing of Calves.

There are two methods of rearing calves; one is to let them run about with the dam till sufficiently old to live by feeding on grass; a plan which is productive of the best cattle; the other is, to take them from the dam at ten days, or a fortnight old, and to suffer them either to suck the cow, twice or three times a day, or to remove them from the cow entirely, and feed them with warm milk and other potations; these last methods are more commonly adopted to fatten them, and at the end of a few weeks to kill them for *veal.* For this purpose the calves are usually placed in a house, or shed, on an elevated stage, so that their excrements and urine may pass off from them easily, and their coats be kept dry and clean. The calves are also confined by a collar, so that they cannot move about, but are just enabled by such confinement to rise up and lie down. We know also that it is the practice with many farmers to put no litter on the stage; but, we think in this that they greatly err: for the warmer an animal is kept, so that he is not kept above his natural temperature, the sooner he becomes fat, and, under given circumstances, with less food. Besides, such naked stages are frequently the cause of pain to the animal: and every animal which is in pain, or which frets, will not fatten so soon as one which is wholly at his ease. The trouble of removing the litter every day, is by no means to be put in competition with the advantages to be derived from keeping the calf warm and easy.

Where the calves are to be suckled by the cows periodically during the day, it is essential that the suckling-house be spacious and airy, having ties on one side for confining the cows, and on the other a set of cribs, or pens, for containing the calves. It is also advisable that the calves should as much as possible be excluded from the influence of light. And it is of the utmost consequence, wherever they are confined, that they should be kept perfectly clean and free from every sort of disagreeable smell.

The milk, if given to them "by the hand," should be made previously warm to about the heat of the milk of the cow.

Of fattening Calves.

The length of time for perfecting the business of fattening varies; but in most cases it is from six or seven, to eight or nine weeks. In some districts barley-meal and linseed boiled into a kind of jelly, hay-tea, and such like materials, are sometimes given to calves in the course of fattening; but, although such feeding may occasionally be found advantageous, the milk of the cow is unquestionably the best and most natural mode of fattening them.

It has been found that a good cow will yield a full supply of milk for two calves, whilst they are young; as the calf increases in size it requires, of course, more milk; when, therefore, the whole produce is demanded for one calf, another new milch-cow should be provided, and these two cows will abundantly supply three calves with milk till the oldest is fit for the butcher. Or the surplus milk from a cow feeding but one calf, for some time, can be reserved for butter, &c.

Young calves, when permitted to suck their fill, are often troubled with a looseness or scouring. To prevent this, for the first fortnight or three weeks they should be stinted in their allowance, taking care that they do not pine or decrease in flesh for want of food. After this age they should be allowed to suck as long as they choose, and every means ought to be taken to increase their appetites. Chalk may be used for this purpose, as well as for correcting the acidity in the stomach. Salt sprinkled in the troughs likewise acts as a stimulus to the appetite; and some persons give them balls, composed of flour, pounded chalk, and milk, with the addition of a small quantity of common gin, and sometimes a little tincture of opium. Of these balls two are given about the size of a walnut, once a day, or oftener, to each calf. A chalk-stone is also sometimes suspended within reach of the calf, so that he may lick it; and bleeding once or twice during the fattening is also recommended. But, we believe that most, if not all, of these arts are wholly unnecessary where the calf is healthy, and has a full supply of milk, either by sucking the cow, or its being given him by hand.

To manage Young Chickens

The chickens first hatched, are to be taken from the hen, lest she be tempted to leave her task unfinished. They may be secured in a basket of wool or soft hay, and kept in a moderate heat, if the weather be cold, near the fire. They will require no food for 24 hours, should it be necessary to keep them so long from the hen. The whole brood being hatched, place the hen under a coop abroad, upon a dry spot, and, if possible, not within reach of another hen, since the chickens will mix, and the hens are apt to maim and destroy those which do not belong to them. Nor should they be placed near young fowls, which are likely to crush them, being always eager for their small meat.

The first food should be split grits, afterwards tail wheat, all watery food, soaked bread, or potatoes, being improper. Eggs boiled hard, or curd chopped small, is very suitable as first food. Their water should be pure and often renewed, and there are pans made in such forms, that the chickens may drink without getting into the water, which, by wetting their feet and feathers, numbs and injures them; a bason in the middle of a pan of water, will answer the end; the water running round it. There is no necessity for cooping the brood beyond two or three days, but they may be confined as occasion requires, or suffered to range, as they are much benefited by the foraging of the hen. They should not be let out too early in the morning, whilst the dew lies upon the ground, nor be suffered to range over wet grass, which is a common and fatal cause of disease in fowls. Another caution requisite is to guard them against unfavourable changes of the weather, particularly if rainy. Nearly all the diseases of fowls arise from cold moisture.

For the period of the chickens quitting the hen, there is no general rule, when she begins to roost, if sufficiently forward, they will follow her; if otherwise, they should be secured in a proper place, till the time arrives when they are to associate with the other young poultry, since the larger are sure to overrun and drive from their food the younger broods.

To clean Water-casks.

Scour the inside well out with water and sand, and afterwards, apply a quantity of charcoal dust; another and better method is, to rinse them with a pretty strong solution of oil of vitriol and water, which will entirely deprive them of their foulness.

To preserve Eggs

Apply with a brush a solution of gum-arabic to the shells, or immerse the eggs therein, let them dry, and afterwards pack them in dry charcoal dust. This prevents their being affected by any alterations of temperature.

A substitute for Milk and Cream.

Beat up the whole of a fresh egg, in a basin, and then pour boiling tea over it gradually, to prevent its curdling. It is difficult from the taste, to distinguish the composition from rich cream.

To cure Butter.

Take two parts of the best common salt, one part of sugar, and one part of salt-petre; beat them up, and blend the whole together. Take one ounce of this composition, for every sixteen ounces of butter, work it well into the mass, and close it up for use.

Butter cured this way, appears of a rich marrowy consistence, and fine colour, and never acquires a brittle hardness, nor tastes salt. It will likewise keep good three years, only observing, that it must stand three weeks or a month, before it is used.

To preserve Flour.

Attach a number of lofts to every mill, so that the flour, in place of being thrust into sacks, the moment it escapes from the friction of the stones, may be taken up by the machinery, and spread out to cool in the most careful manner. The violent friction of the stones necessarily creates a great heat and steam; and if flour is thrust into sacks in this state, a chemical action will make it moist, soft, and clammy.

To preserve Wheat.

Kiln dry it and put it in cubical cases of earthenware, glazed on the outside, and filled full as possible; cover them by a piece of the same ware made to fit close, and secured with a mixture of pitch, tar, and hempen cloth, till the whole be made air tight. A case of this kind might be made which would hold four bushels or a quarter of wheat.

To remove Flies from Rooms.

Take half a tea-spoonful of black pepper, in powder, one tea-spoonful of brown sugar, and one table-spoonful of cream; mix them well together, and place them in the room, on a plate, where the flies are troublesome, and they will soon disappear.

To make excellent Bread.

Mix seven pounds of best flour, with three pounds of pared boiled potatoes. Steam off the water, and leave them a few minutes on the fire, mash them fine, and mix them whilst quite warm in the flour, with a spoonful or more of salt. Put a quart of water, milk warm, with three large spoonsful of yeast, gradually to the potatoes and flour. Work it well into a smooth dough, and let remain four hours before it is baked.

To prepare Household Bread.

Mix four ounces of salt, three quarts of water, a pint of yeast, and a peck of second flour, in a trough; when properly fermented, knead and divide it into loaves. Sometimes a portion of rye-meal, rice, flour, or boiled potatoes, are mixed with the flour previous to the kneading, the two former serve to bind the bread, the latter cause it to be open and spongy.

To make French Bread.

Put a pint of milk into three quarts of water. In winter let it be scalding hot, but, in summer, little more than milk-warm: put in salt sufficient. Take a pint and a half of good ale yeast, free from bitterness, and lay it in a gallon of water the night before. Pour off the yeast into the milk and water, and then break in rather more than a quarter of a pound of butter. Work it well till it is dissolved; then beat up two eggs in a basin, and stir them in. Mix about a peck and a half of flour with the liquor, and, in winter, make the dough pretty stiff, but more slack in summer; mix it well, and the less it is worked the better. Stir the liquor into flour, as for pie-crust, and after the dough is made, cover it with a cloth, and let it lie to rise, while the oven is heating. When the loaves have lain in a quick oven about a quarter of an hour, turn them on the other side for about a quarter of an hour longer. Then take them out, and chip them with a knife, which will make them look spongy, and of a fine yellow, whereas rasping takes off this fine colour, and renders their look less inviting.

To make Leaven Bread.

Take about two pounds of dough of the last making, which has been raised by barm; keep it in a wooden vessel, covered well with flour. This will become leaven when sufficiently sour. Work this quantity into a peck of flour with warm water. Cover the dough close with a cloth, or flannel, and keep it in a warm place; further mix it next morning with two or three bushels of flour, mixed up with warm water and a little salt. When the dough is thoroughly made, cover it as before. As soon as it rises, knead it well into loaves Observe in this process, that the more leaven is put to the flour, the lighter the bread will be and the fresher the leaven, the less sour will it taste

To detect Adulteration in Bread.

Run into the crumb of a loaf one day old, the blade of a knife considerably heated; and if adulterated with alum it will shew its unwholesome adherences on the surface; and it may be further detected by the smell. Bone-dust or plaster of Paris, may be discovered, by slicing the sof part of a loaf thin, and soaking it in a large quantity of water in an earthen vessel, placed over a slow fire, three or four hours. Then having poured off the water and pap, the obnoxious matter will be found at the bottom.

To preserve Houses from Vermin

Bugs, in particular, may readily be destroyed by dissolving half a drachm of corrosive sublimate, in a quarter of an ounce of spirits of salts, mixing it with one quart of spirit of turpentine. Shake these well together, dip a brush in it, and wash those places where bugs are supposed to resort: this will remove them to a greater certainty than any other mode now practised.

Easy method of preserving Animal Food sweet for several days in the height of summer.

Veal, mutton, beef, or venison, may be kept for nine or ten days perfectly sweet and good, in the heat of summer, by lightly covering the same with bran, and hanging it in a high and windy room; therefore, a cupboard full of small holes, or a wire safe, so as the wind may have a passage through, is recommended to be placed in such a room, to keep away the flies.

To preserve Game in hot weather.

Game or poultry may be preserved for a long time, by tying a string tight round the neck, so as to exclude the air, and by putting a piece of charcoal into the vent.

To sweeten Meat, Fish, &c. that is tainted.

When meat, fish, &c. from intense heat, or long keeping, are likely to pass into a state of corruption, a simple and pure mode of keeping them sound and healthful is by putting a few pieces of charcoal, each the size of an egg, into the pot or saucepan, wherein the fish or flesh are to be boiled. Among others, an experiment of this kind was tried upon a turbot, which appeared too far gone to be eatable: the cook, as advised, put three or four pieces of charcoal, each the size of an egg, under the strainer, in the fish kettle; after boiling the proper time, the turbot came to table perfectly sweet and firm.

To purify fly-blown Meat.

It has been successfully proved, by many experiments, that meat entirely fly-blown has been sufficiently purified to make good broth, and had not a disagreeable taste, by being previously put into a vessel containing a certain quantity of beer. The liquor will become tainted, and have a putrid smell.

To detect Dampness in a Bed.

Let your bed be first well warmed, and immediately as the warming-pan is taken out, introduce between the sheets, in an inverted direction, a clear glass goblet; after it has remained in that situation a few minutes, examine it; if found dry, and not tarnished with drops of wet, for there will often appear a slight cloud of steam, the bed is safe; but if drops of wet or damp adhere to the inside of the glass, it is a certain sign of a damp bed. Even wearing apparel, when on the person, will, in most parts of England, by the application of a warming-pan, stain glass with a slight steam, but not drops of wet. Or, take off the sheets and sleep in the blankets.

Hints on warming Beds.

In taking the coals into the warming-pan, remove therefrom any black coals in a burning state, and scatter upon those in the pan a little common salt; this will correct the unhealthy sulphureous vapour of the coals, and prevent their suffocating smell.

Excellent Substitute for Table Beer.

As small beer is apt to become sour in warm weather, a pleasant beer may be made, by adding to a bottle of porter ten quarts of water, and a pound of brown sugar or molasses. After they have been well mixed, pour the liquor into bottles, and place them, loosely corked, in a cool cellar. In two or three days it will be fit for use. A spoonful of ginger, added to the mixture, renders it more lively and agreeable to the taste. This might be adopted in the navy instead of grog.

To make good Spruce Beer.

This cheap and wholesome liquor is thus made: take of water sixteen gallons, and boil the half of it; put the water thus boiled, while in full heat, to the reserved cold part, which should be previously put into a barrel or other vessel; then add sixteen pounds of treacle or molasses, with a few table-spoonfuls of the essence of spruce, stirring the whole well together; add half a pint of yeast, and keep it in a temperate situation, with the bung-hole open, for two days, till the fermentation be abated; then close it up, or bottle it off, and it will be fit to drink in a few days afterwards. In North America, and perhaps in other countries, where the black and white spruce firs abound, instead of adding the essence of the spruce at the same time with the molasses, they make a decoction of the leaves and small branches of these trees, and find the liquor equally good.

It is a powerful antiscorbutic, and may prove very useful in a long sea voyage.

To loosen the glass stopples of Smelling Bottles and Decanters.

With a feather rub a drop or two of olive oil round the stopple, close to the mouth of the bottle or decanter, which must be then placed before the fire, at the distance of a foot or eighteen inches; in which position the heat will cause the oil to spread downward between the stopple and the neck. When the bottle or decanter has grown warm, gently strike the stopple on one side, and on the other, with any light wooden instrument; then try it with the hand. If it will not yet move, place it again before the fire, adding, if you choose, another drop of oil. After a while strike again as before; and by persevering in this process, however tightly the stopple may be fastened in, you will at length succeed in loosening it.

To discover whether Flour be adulterated with Whitening or Chalk.

Mix with the flour some juice of lemon or good vinegar; if the flour be pure they will remain together at rest, but if there be a mixture of whitening or chalk, a fermentation, or working like yeast, will ensue. The adulterated meal is whiter and heavier than the good. The quantity that an ordinary tea-cup will contain has been found to weigh more than the quantity of genuine flour by four drachms and nineteen grains troy.

Improved method of salting Butter and Meat.

Best common salt two parts, saltpetre one part, sugar one part; beat them up together, so that they may be completely blended. To every sixteen ounces of butter add one ounce of the composition; mix it well in the mass, and close it up for use. It should not be used for a month, that it may be thoroughly incorporated. Butter, thus cured, has been kept for three years perfectly sweet. Keep the air from it, or it spoils. Cover it with an oiled paper, and a board on that.

To cure meat, add one ounce of the above composition to every sixteen ounces of meat. It must be *very well rubbed into the meat.* You cannot have it too finely powdered, nor too well rubbed into the meat.

Method of curing bad Tub Butter.

A quantity of tub butter was brought to market in the West Indies, which, on opening, was found to be very bad, and almost stinking. A native of Pennsylvania undertook to cure it, which he did, in the following manner:

He started the tubs of butter in a large quantity of hot water, which soon melted the butter; he then skimmed it off as clean as possible, and worked it over again in a churn, and, with the addition of salt and fine sugar, the butter was sweet and good.

Method for taking the Rankness and disagreeable Taste from Irish Salt Butter.

The quantity proposed to be made use of, either for toasts or melting, must be put into a bowl filled with boiling water, and when the butter is melted, skim it quite off; by this method it is so separated from any gross particles, that it may require a small addition of salt, which may be put into the cold water that is made use of in melting butter for sauce; and though the butter is oiled by hot water, it becomes a fine cream in the boiling for sauce.

To make Salt Butter fresh.

Put four pounds of salt butter, into a churn, with four quarts of new milk, and a small portion of arnotto. Churn them together, and, in about an hour, take out the butter, and treat it exactly as fresh butter, by washing it in water and adding the customary quantity of salt.

This is a singular experiment. The butter gains about three ounces in each pound, and is in every particular equal to fresh butter. It would be greatly improved by the addition of two or three ounces of fine sugar, in powder. A common earthen churn answers the same purpose as a wooden one, and may be purchased at any pot shop.

To prevent Children from eating their Food too quickly.

Children, when very young, get into the habit of eating their food too quickly, particularly fruit, and other substances of which they are fond. To prevent their acquiring this habit, amusing devices might be employed, as cutting an apple, a pear, a piece of cake, or any other article of the same sort, into a number of pieces, arranging them in lines like an army, with one as an officer in the centre, and telling them that the whole army must be devoured piece by piece, and in a regular manner! This interests little children so much, that they soon prefer it to a more speedy mode of consumption.

Best Method of cleaning fine Block-tin Dish Covers Patent Pewter, &c.

Where the polish is gone off, let the articles be first rubbed over the outside with a little sweet oil, on a piece of soft linen cloth; then clear it off with dry pure whitening, quite free from sand, on linen cloths, which will make them look as well as when new. The insides should be rubbed with rags moistened in wet whitening, but without a drop of oil. Always wiping these articles dry, when brought from table, and keeping them free from steam or other damp, greatly facilitates the trouble of cleaning them.

Varnish for Furniture.

To one part of virgin's white wax add eight parts of oil of petroleum; lay a slight coat of this mixture on the wood with a badger's brush, while a little warm; the oil will then evaporate, and leave a thin coat of wax, which should afterwards be polished with a coarse woollen cloth.

Cleaning Floor Cloths.

After sweeping and cleaning the floor cloths with a broom and damp flannel, in the usual manner, wet them over with milk, and rub them till beautifully bright, with a dry cloth. They will thus look as well as if they were rubbed first with a waxed flannel, and afterward with a dry one; without being so slippery, or so soon clogging with dust or dirt.

To clean Flint-Glass Bottles, Decanters, &c. &c.

Roll up, in small pieces, some whited-brown or blotting-paper; then wet and soap the same; put them into the vessel with a little luke-warm water; shake them well for a few minutes: then rinse the glass with clean water, and it will be as bright and clear as when new from the shops.

To Clean Turkey Carpets.

To revive the colour of a Turkey carpet, beat it well with a stick till the dust is all got out; then, with a lemon or sorrel juice, take out the spots of ink, if the carpet be stained with any; wash it in cold water, and afterwards shake out all the water from the threads of the carpet. When it is thoroughly dry, rub it all over with the crumb of a hot wheaten loaf; and, if the weather is very fine, hang it out in the open air a night or two.

To clean Marble.

Take a bullock's gall, a gill of soap lees, half a gill of turpentine, and make it into a paste with pipe clay; then apply it to the marble, and let it dry a day or two; then rub it off; and, if not clean, apply it a second or third time until it is clean.

Mixture for cleaning Stone Stairs, Hall Pavements, &c.

Boil together half a pint each of size and stone blue water, with two table-spoonfuls of whitening, and two cakes of pipemaker's clay, in about two quarts of water. Wash the stones over with a flannel slightly wetted in this mixture; and, when dry, rub them with flannel and a brush. Some persons recommend beer, but water is much better for the purpose.

To preserve Eggs for a length of time.

Put an egg for one minute in water just about to boil, (it will not in that time be hard), and it will afterwards keep well for a month. Steep one a little while in sweet oil, and it will keep for half a year.

To Clean Mahogany Furniture.

Three pennyworth of alkanet root, one pint of cold drawn linseed oil, two pennyworth of rose pink; put these into a pan, and let them stand all night: then take some of this mixture, rub it over the tables or chairs, and let it remain one hour; then take a linen cloth and rub it well off, and it will leave a beautiful gloss on the furniture.

If the pinky shade occasioned by the alkanet root and pink is disagreeable, they may be omitted in part or entirely.

To ascertain the Properties of Goose Down.

There is a sort of maturity in regard to down, which may easily be discovered, as it then falls of itself; if removed to soon it will not keep, and is liable to be attacked by worms. Lean geese furnish more than those which are fat, and are also more esteemed. Farmers ought never to suffer feathers to be pulled from geese some time after they are dead, for the purpose of being sold; they generally smell bad, and become matted; none but those plucked from living geese, or which have been just killed, ought to be introduced into commerce. In the latter case, the geese must be plucked soon, and in such a manner that the operation may be terminated before they are entirely cold; the feathers are then much better

erman Furniture Gloss, or Polishing Wax for Mahogany, &c.

Cut in small pieces a quarter of a pound of yellow wax; and, melting it in a pipkin, add an ounce of well pounded colophony, or black rosin. The wax and colophony being both melted, pour in, by degrees, quite warm, two ounces of oil or spirit of turpentine. When the whole is thoroughly mixed, pour it into a tin or earthen pot, and keep it covered for use. The method of applying it to the furniture, which must be first well dusted and cleaned, is by spreading a little of this composition on a piece of woollen cloth, and well rubbing the wood with it; and, in a few days, the gloss will be as firm and fast as varnish.

To clear Iron from Rust.

Pound some glass to fine powder; and having nailed some strong linen or woollen cloth upon a board, lay upon it a strong coat of gum-water, and sift thereon some of your powdered glass, and let it dry; repeat this operation three times, and when the last covering of powdered glass is dry, you may easily rub off the rust from iron utensils, with the cloth thus prepared.

To fatten Poultry.

Poultry should be fattened in coops, and kept very clean. They should be furnished with gravel, but with no water. Their only food, barley-meal, mixed so thin with water as to serve them for drink. Their thirst makes them eat more than they would, in order to extract the water that is among the food. This should not be put in troughs, but laid upon a board, which should be clean washed every time fresh food is put upon it. It is foul and heated water which is the sole cause of the pip.

Method of fattening Geese and Ducks.

Geese, the more quiet and undisturbed they are kept, the faster and better they fatten.

I shall begin with what are usually called green geese:—Let these young geese be put in a place that is almost dark, and be fed with some ground malt mixed up with milk, and they will very soon, and at very little expense, be fit to kill; the method has often been tried, and the flesh has been found to eat very delicate.

I sometimes fat them in a still cheaper way, especially when milk is scarce: I mix up some barley meal pretty thick, with water, which they constantly have by them, to eat as they chuse; in another part of the shed, where they are kept, is a pan with some boiled oats, and water, for them to resort to when they are inclined to change their food. This variety is agreeable to them, and they thrive apace, being so fattened at less expense than in any other manner I know of.

The manner in which I manage my Michaelmas, or stubble geese, is not very different from that above described. Immediately after harvest I turn them on the wheat eddishes, where they pick up flesh apace: but when I take them up to fatten, I feed them with ground malt, mixed up with water, and give them with it boiled oats, boiled malt, or boiled barley, and sometimes, for change, even boiled wheat and water. Thus managed, they grow fatter and acquire a finer flavour than would at first be imagined, and greatly superior to those in the London markets.

I fatten my ducks in the same manner, only allowing them a larger pan to dabble in, which answers extremely well.

I keep a very considerable number of ducks for breeders, having near my house the convenience of several ponds, and I annually set in the spring a great number of duck eggs under hens; it is therefore natural that I should chuse a breed as will lay me a large store of eggs, and I have always found such as have their bills turn up rather more than ordinary to answer this purpose best.

To purify Water for Domestic and other Purposes.

This method is extremely simple, and consists in placing horizontally, in the midst of a common water butt, a false bottom, perforated with a great number of small holes. The butt being thus divided into two equal parts, the upper is filled with pieces of charcoal, which must be neither too large nor too small, thoroughly burned, light, and well washed. Immediately under the cock, by which the water enters the butt, must be placed a small hollow cylinder, being merely to break the force of the water, and prevent it from falling upon the charcoal with such violence as to detach from it any particles of dirt, and wash them through into the lower receptacle; it is of little consequence of what material it is made. M. Siauve thinks that this contrivance might be made subservient to the interests of agriculture as well as domestic economy; and that it would be highly advantageous to provide water thus filtered for the cattle, during the whole of the dog days, and particularly when the ponds and streams are infected by the rotting of hemp and flax.

Remark.—A very good filtre may be made of charcoal, but it is comparatively expensive; and there is a patent for the only way in which the filtre can be made to last. In the above receipt, if the charcoal is not in very fine powder, it will have little effect in purifying the water; if it be, the charcoal will very soon choke from the quantity of mud deposited in it by the water, and the frequent renewals of the charcoal, which would be necessary from the choking, would be found expensive. The contrivance could only be useful as a temporary means of ascertaining the power of the charcoal on the particular kind of water, with a view afterwards to procure a proper filtre.

To purify Water for Drinking.

Filtre river water through a sponge, more or less compressed, instead of stone or sand, by which the water is not only rendered more clear, but wholesome; for sand is insensibly dissolved by the water, so that in four or five years it will have lost a fifth part of its weight. Powder of charcoal should be added to the sponge when the water is foul, or fetid. Those who examine the large quantity of terrene matter on the inside of tea-kettles, will be convinced all water should be boiled before drunk, if they wish to avoid being afflicted with gravel and stone, &c. &c.

To purify the muddy Water of Rivers or Pits.

Make a number of holes in the bottom of a deep tub; lay some clean gravel thereon, and above this some clean sand; sink this tub in the river or pit, so that only a few inches of the tub will be above the surface of the water;

the river or pit water will filter through the sand, and rise clear through it to the level of the water on the outside, and will be pure and limpid.

Method of making putrid Water sweet in a Night's time.

Four large spoonfuls of unslacked lime put into a puncheon of ninety gallons of putrid water, at sea, will, in one night, make it as clear and sweet as the best spring water just drawn: but unless the water is afterwards ventilated sufficiently to carbonize the lime, it will be a lime water. Three ounces of pure unslacked lime should saturate ninety gallons of water.

Warm Water.

Warm water is preferable to cold water, as a drink for persons who are subject to dyspeptic and bilious complaints, and it may be taken more freely than cold water, and consequently answers better as a diluent for carrying off bile, and removing obstructions in the urinary secretion, in cases of stone and gravel. When water, of a temperature equal to that of the human body, is used for drink, it proves considerably stimulant, and is particularly suited to dyspeptic, bilious, gouty, and chlorotic subjects.

To preserve Potatoes from the Frost.

If you have not a convenient store-place for them, dig a trench three or four feet deep, into which they are to be laid as they are taken up, and then covered with the earth taken out of the trench, raised up in the middle like the roof of a house, and covered with straw, to carry off the rain. They will be thus preserved from the frost, and can be taken up as they are wanted.

Method of recovering Frost-bitten Fruits and Vegetables.

This may be done by putting such fruits and roots, as pears, apples, potatoes, &c. as have been penetrated by frost, into cold water, when a thaw approaches, and letting them remain in the water some time, till by the plumpness and fairness of the fruit and roots it appears that the particles of the frost are extracted. This method has been often tried and found to answer, but at the same time the utmost care should be taken to preserve these things from the frost, as it is better to keep off an enemy than to be at the trouble of driving him out.

To preserve Apples.

Dry a glazed jar perfectly well, put a few pebbles in the bottom; fill the jar with apples, and cover it with bit of wood made to fit exactly; and over that, put a little fresh mortar. The pebbles attract the damp of the apples. The mortar draws the air from the jar, and leaves the apples free from its pressure, which together with the principle of putrefaction which the air contains, are the causes of decay. Apples, kept thus, have been found quite sound, fair, and juicy, in July.

To preserve Eggs sound for the space of Two Years

For the following process, for keeping and preserving eggs perfectly sound, a patent was granted in February, 1791, to Mr. Jayne, of Sheffield, Yorkshire:

Put into a tub or vessel, one bushel, Winchester measure, of quicklime, thirty-two ounces of salt, eight ounces of cream of tartar, and mix the same together with as much water as will reduce the composition, or mixture to that consistence, that it will cause an egg put into to swim with its top just above the liquid; then put, and keep the eggs therein, which will preserve them perfectly sound for the space of two years at the least.

This method is not the worse for being simple, and the still simpler one of merely keeping eggs in salt, is known by many good housewives to preserve eggs quite sound for a considerable time.

Manner of preserving Eggs perfectly fresh for Twelve Months.

Having provided small casks, like oyster barrels, fill them with fresh laid eggs; then pour into each cask, the head of which is supposed to have been first taken out, as much cold thick lime-water as will fill up all the void spaces between the eggs, and likewise completely cover them. The thicker the lime-water is, the better, provided it will fill up all the interstices, and be liquid at the top of the cask; this done, lay on the head of the cask lightly. No farther care is necessary than merely to prevent the lime from growing too hard, by adding, occasionally, a little common water on the surface, should it seem so disposed, and keeping the casks from heat and frost. The eggs, when taken out for use, are to be washed from the adhering lime with a little cold water, when they will have both the appearance and qualities of fresh laid eggs, the lime preserving them from shrinking or putridity

To destroy Bugs

Take of the highest rectified spirits of wine, (viz. lamp spirits) that will burn all away dry, and leave not the least moisture behind, half a pint: new distilled oil, or spirits, of turpentine, half a pint; mix them together, and break into it, in small bits, half an ounce of camphor; which will dissolve in a few minutes; skake them well together, and with a sponge, or a brush, dipt in some of it, wet very well the bed or furniture wherein these vermin harbour and breed, and it will infallibly kill and destroy both them and their nits, although they swarm ever so much. But then the bed or furniture must be well and thoroughly wet with it (the dust upon them being first brushed and shook off,) by which means it will neither stain, soil, or in the least hurt the finest silk or damask bed that is. The quantity here ordered of this curious neat white mixture, which costs about a shilling, will rid any one bed whatever, though it swarms with bugs. Do but touch a live bug with a drop of it, and you will find it die immediately; if any should happen to appear, after once using, it will only be for want of well wetting the lacing, &c. of the bed, or the foldings of the linings or curtains, near the rings, or the joints, or holes in and about the bed, or head-board, wherein the bugs or nits nestle and breed, and then their being well wet altogether again, with more of the same mixture, which dries in as fast as you use it, pouring some of it into the joints or holes where the sponge or brush cannot reach, will never fail absolutely to destroy them all. Some beds, that have much wood, can hardly be thoroughly cleaned without being first taken down; but others that can be drawn out, or that you can get well behind to be done as it should be, may.

Note.—The smell this mixture occasions will be gone in two or three days, which is yet very wholesome, and to many people agreeable. You must remember always to shake the liquor together very well whenever you use it, which must be in the daytime, not by candlelight, lest the subtlety of the mixture should catch the flame as you are using it, and occasion damage.

To prevent the disagreeable smell arising from House Drains.

As the diffusion of this noxious matter, within our dwellings, tends to produce disease and mortality, it cannot be too generally known that a cheap and simple apparatus has been contrived for carrying off the waste water, &c. of sinks, and which at the same time prevents the possibility of any air ever returning back into the house from thence, or from any drain which may be connected with it. It is known by the name of a *stink trap*, and ma be had at any of the ironmongers.

BRITISH WINES.

Wine from unripe Gooseberries.

Take of sound unripe gooseberries, perfectly clean, forty pounds; water, four gallons; white sugar, thirty pounds; crude tartar, in powder, six ounces.

Bruise the gooseberries in a tub, by pressure sufficient to crush the berries, without breaking the seeds, or materially compressing the skins; pour the four gallons of water into the vessel, and stir and squeeze the contents, until the whole of the juice and pulp are separated from the solid matters. The materials are then to remain at rest, from six to twenty-four hours, when they are to be strained through a coarse bag, by as much force as can be conveniently applied to them. One gallon of fresh water may afterwards be passed through the *marc*, for the purpose of obtaining all the soluble matter from the gooseberries. Dissolve the sugar in the juice thus procured, and let the total bulk of the fluid be made up with water, to the amount of ten and a half gallons. The crude tartar must also be now added.

The liquor thus obtained is the artificial *must*, and is equivalent to the juice of the grape. It must be placed in a tub of sufficient capacity, over which a blanket or similar texture, covered by a board, may be thrown, the vessel being placed in a temperature from 55° to 60°. Here it may remain for a day or two, according to the symptoms of fermentation, and from this tub it must be drawn off into the cask, in which it is to ferment. The cask must be filled nearly to the bung-hole, that the scum which arises may be thrown out; as the fermentation proceeds, and the bulk of the liquor diminishes, the superfluous portion of must which was made for this express purpose, must be poured in, so as to keep the liquor still near the bung-hole. As the fermentation declines, the bung must be driven in, and a small hole be bored in the side of the cask, into which a wooden peg is fitted. After a few days this peg is to be loosened, and the carbonic acid may, if any be generated, escape. This peg must be removed afterwards occasionally, for the same purpose; and, when the danger from excessive expansion is over, the peg may be permanently driven in. It may remain in this state through the winter: or it may be decanted from the first lees in December, if sufficiently fermented: and if not it may be shaken up with the lees to promote its effectual fermentation. It may be fined with isinglass.

All shiftings and bottlings of such wine should be, if possible, in clear, dry, and cold weather; and in any case, it must be bottled in the month of March.

Wine from unripe Currants.

The same proportions of currants, sugar, &c. are necessary for this wine as for the gooseberry; and the same mode of proceeding in every respect.

In both these wines it may be useful, perhaps, to observe, that to insure briskness without excessive sweetness, the proportion of fruit should be fifty pounds, and the sugar continued the same in quantity; or the quantity of sugar may be increased to forty pounds, if a very sweet, as well as a very brisk wine, be desired; and if a weaker wine be wished, twenty-five pounds only of sugar may be used in these processes.

Wine from unripe Grapes.

The same proportions of grapes, sugar, &c. are necessary for this wine as for the two former. The husks of the grape may be always fermented in the vat with the fluid; and, with the exception of the seeds, no harm can arise from bruising the solid matters.

As no yeast is directed in any of these operations, we must not conclude that the fermentation will be less effectual on that account. Attention to the temperature will commonly be sufficient to excite and continue it. If, however, it should become languid during its progress, simply agitating the liquor, or omitting to replenish the vessel, so that the scum may remain in it, will generally be effectual.

Wine from the leaves of the Vine.

The leaves may be taken, at any period, from vines which have been cultivated for this purpose, and from which no fruit is expected; the tendrils are also equally useful: the claret vine may be cultivated for this purpose, by which the wine will have a red colour; the leaves are best when young. Take forty or fifty pounds of such leaves, upon which must be poured seven or eight gallons of boiling water; let them infuse for twenty-four hours; the liquor being poured off, the leaves must be pressed strongly, and being subsequently washed, with an additional gallon of water, they must be again submitted to the action of the press. The quantity of sugar may be varied, as in the preceding forms, according to the nature of the wine wanted.

Wine from ripe Gooseberries or Currants.

This wine may be made either sweet or dry. If sweet is intended, the fruit should not exceed forty pounds; if dry, it may extend to sixty. The proportion of sugar must be thirty pounds as above; and, if a still stronger wine be desired, forty pounds of sugar must be used.

Wine from ripe Grapes.

No water must be used in this wine. To each gallon of juice, after expression, a quantity of sugar must be added, varying from one to two pounds in proportion to the greater or less sweetness of the fruit. The remainder of the management is as before.

The proportions of *all* the preceding wines are calculated for a cask of *ten* gallons.

The wines from elder berries, raspberries, or other fruits, are to be made in the same manner, and with similar proportions.

A superior class of fruit wines is made by using the 'uices of all these fruits, without any water being added.

When wine is made from boiled fruits, such as black currants, it will be sufficient that the fruit is simply brought to the boiling point before using it, the water in the vessel being so managed as to avoid the risk of burning

CHAP. II.

BREWING

Cheap and easy method of Brewing.

One bushel of malt, and three quarters of a pound of hops will, on an average, brew twenty gallons of good beer.

For this quantity of malt, boil twenty-four gallons of water; and having dashed it in the copper with cold water to stop the boiling, steep the malt (properly covered up) for three hours; then tie up the hops in a hair cloth, and boil malt, hops, and wort, altogether, for three quarters of an hour, which will reduce it to about twenty gallons. Strain it off, and set it to work when lukewarm.

In large brewings this process perhaps would not answer, but in small ones, where the waste is not so great, and where the malt can be boiled, the essence is sure to be extracted.

To choose Water for Brewing.

Soft water, or hard water softened by exposure to the air, is generally preferred, because it makes a stronger extract, and is more inclined to ferment; but hard water is better for keeping-beer, and is less liable to turn sour. Some persons soften hard water by throwing a spoonful of soda into a barrel, and others do it with a handful of common salt mixed with an ounce of salt of tartar.

To Grind Malt.

To obtain the infusion of malt, it is necessary to break it, for which purpose it is passed through stones placed at such distance, as that they may crush each grain without reducing it to powder; for if ground too small, it makes the worts thick, while, if not broken at all, the extract is not obtained. In general, pale malts are ground larger than amber, or brown malts.

Malt should be used within two or three days after it is ground, but in the London brew-houses, it is generally ground one day and used the next. A quarter of malt ground, should yield nine bushels and sometimes ten. Crushing mills, or iron rollers, have lately been used in preference to stones, which makes considerable grit with the malt. On a small scale, malt may be broken by wooden rollers, by the hand.

Steel mills, like coffee-mills, have also been used for crushing malt with great success.

To determine the qualities of Malt.

First, examine well if it has a round body, breaks soft, is full of flour all its length, smells well, and has a thin skin; next chew some of it, and if sweet and mellow, then it is good. If it is hard and steely, and retains something of a barley nature, it has not been rightly made, and will weigh heavier than that which has been properly malted.

Secondly, take a glass nearly full of water; put in some malt, and if it swims, it is good, but if any sinks to the bottom then it is not true malt.

Pale malt is the slowest and least dried, producing more wort than high-dried malt, and of better quality.—Amber coloured malt, or that between pale and brown, produces a flavour much admired in many malt liquors. Brown malt loses much of its nutritious qualities, but confers a peculiar flavour desired by many palates. Roasted malt after the manner of coffee, is used by the best London brewers to give colour and flavour to porter, which in the first instance has been made from pale malt.

Method of extracting the virtue of Hops.

The usual method is to put in hops without any preparation, into the strong beer or ale wort; the consequence is, the richer and better the wort is, the less it will partake of the essence of the hops. The rich fat wort sheathes up the pores of the hop, and, as it were, embalms the leaves, so that the beer or ale wort can extract scarcely any part of the necessary quality of the hop; but when it is put into the small beer wort, a fluid of a more thin nature, there the pores are unsheathed, and the small beer is rendered too bitter; therefore the hops, before they are put into the strong drink, should be previously soaked in a pail of hot water.

To confirm the truth of this observation, take a quarter of an ounce of the best green tea, and instead of pouring on it simple boiling water, let the water have the same quantity of sugar boiled in it that would be necessary to sweeten so much tea when made, and you will find that the sweetness of the water will prevent its extracting the grateful bitter of the tea.

To choose Hops.

Rub them between the fingers or the palm of the hand, and if good, a rich glutinous substance will be felt, with a fragrant smell, and a fine yellow dust will appear. The best colour is a fine olive green, but if too green, and the seeds are small and shrivelled, they have been picked too soon, and will be deficient in flavour. If of a dusty brown colour, they were picked too late, and should not be chosen. When a year old, they are considered as losing one-fourth in strength. The best and dearest is the Farnham hop; East Kents are the next, but those of Sussex and Worcestershire are not so strong.

To proportion the Hops.

The usual quantity is a pound to the bushel of malt, or eight pounds to the quarter; but for keeping-beer, it should be extended to ten, or twelve, and if for one or two years, to fourteen pounds the quarter. Small beer requires from three to six pounds the quarter, and rather more when old hops are used.

Some persons instead of boiling the hops with the wort, macerate them, and put the strong extract into the tun with the first wort, and make two or three extracts in like manner for the second and third worts.

To make Yeast or Barm.

Mix two quarts of soft water with wheat flour, to the consistence of thick gruel, or soft hasty pudding; boil it gently for half an hour, and when almost cold, stir into it half a pound of sugar, and four spoonfuls of good yeast. Put it into a large jug, or earthen vessel, with a narrow top, and place it before the fire, so that it may, by a moderate heat, ferment. The fermentation will throw up a thin liquor, which pour off and throw away; the remainder keep for use in a cool place in a bottle, or jug tied over. The same quantity of common yeast will suffice to bake or brew with. Four spoonfuls of this will make a fresh quantity as before.

To boil Worts.

The first wort should be sharply boiled for one hour, and the second for two hours. But if intended for beer of long-keeping, the time should be extended half an hour. The hops should be strained from each preceding wort, and returned into the copper with the succeeding one. Between the boilings the fire should be damped with wet cinders, and the copper door set open.

For small-beer only half an hour is necessary for the first wort, one hour for the second, and two hours for the third. The diminution from boiling is from one-eighth to one-sixteenth.

To cool the Worts.

Worts should be laid so shallow as to cool within six or seven hours to the temperature of sixty degrees. In warm weather, the depth should not exceed two or three inches; but in cold weather it may be five inches. As soon as they have fallen to sixty degrees, they should instantly be tunned and yeasted.

To choose heats for Tunning.

In cold weather, the heats in the coolers should be five or six degrees higher than in mild and warm weather. For ale, in cold weather, it should be tunned as soon as it has fallen to sixty degrees in the coolers. For porter, to sixty-four degrees, and for table beer to seventy-four; and in warm weather, strong beer should be four or five degrees less, and table beer seven or eight degrees. Care should be also taken that the worts do not get cold before the yeast is mixed to produce fermentation. The best rule for mixing the yeast is a pound and a half to every barrel of strong beer wort, and a pound to every barrel of table beer wort.

To mix the Yeast with the Worts.

Ale brewed for keeping in winter should be no more than blood warm when the yeast is put to it. If it is intended for immediate drinking, it may be yeasted a little warmer. The best method of mixing the yeast is to take two or three quarts of the hot water wort in a wooden bowl or pan, to which when cool enough, put yeast enough to work the brewing: generally one or two quarts to the hogshead, according to its quality. In this bowl or pan the fermentation will commence while the rest of the worts are cooling, when the whole may be mixed together.

To manage the Fermentation.

A proportion of the yeast should be added to the first wort as soon as it is let down from the coolers, and the remainder as soon as the second wort is let down.

The commencement of fermentation is indicated by a line of small bubbles round the sides of the tun, which in a short time extends over the surface. A crusty head follows, and then a fine rocky one, followed by a light frothy head. In the last stage, the head assumes a yeasty ap pearance, and the colour is yellow or brown, the smell of the tun becoming strongly vinous. As soon as this head begins to fall, the tun should be skimmed, and the skimming continued every two hours till no more yeast appears; this closes the operation, and it should then be put into casks, or, in technical language, cleansed. A minute attention to every stage of this process is necessary to secure fine flavoured, and brilliant beverage. Should the fermentation be unusually slow, it should be accelerated by stirring or rousing the whole. After the first skimming, a small quantity of salt and flour, well mixed, should be stirred in the tun. The fermentation will proceed in the casks, to encourage which, the bung-hole should be placed a little aside, and the casks kept full, by being filled up from time to time with old beer. When this fermentation has ceased, the casks may be bunged up.

To Brew in small Families.

A bushel and three quarters of ground malt, and a pound of hops, are sufficient to make forty-eight gallons of good family ale. That the saccharine matter of the malt may be extracted by infusion, without the farina, the temperature of the water should not exceed 155° or 160° Fahrenheit's thermometer. The quantity of water should be poured on the malt as speedily as possible, and the whole being well mixed together by active stirring, the vessel should be closely covered over for an hour; if the weather be cold, for an hour and a half. If hard water be employed, it should be boiled, and the temperature allowed, by exposure to the atmosphere, to fall to 155° or 160° Fahrenheit; but if rain water is used, it may be added to the malt as soon as it arrives to 155°. During the time this process is going on, the hops should be infused in a close vessel, in as much boiling water as will cover them, for two hours. The liquor may then be squeezed out, and kept closely covered.

The hops should then be boiled for about ten minutes, in double the quantity of water obtained from the infused hop, and then strained liquor, when cold, may be added with the infusion, to the wort, when it has fallen to the temperature of 70°. The object of infusing the hop in a close vessel previous to boiling, is to preserve the essential oil of the hop, which renders it more sound, and, at the same time, more wholesome. A pint of good thick yeast should be well stirred into the mixture of wort and hops, and covered over in a place of the temperature of 65° Fahrenheit; and when the fermentation is completed the liquor may be drawn off into a clean cask previously rinsed with boiling water. When the slow fermentation which will ensue has ceased, the cask should be loosely bunged for two days, when, if the liquor be left quiet, the bung may be properly fastened. The pale malt is the best, because, when highly dried, it does not afford so much saccharine matter. If the malt be new, it should be exposed to the air, in a dry room, for two days previously to its being used; but if it be old, it may be used in twelve or twenty hours after it is ground. The great difference in the flavour of ale made by different brewers, appears to arise from their employing different species of the hop.

Table beer only, from Pale Malt.

The first mash, should be at 170°, viz. two barrels per quarter; let it stand on the grains three-quarters of an hour in hot weather, or one hour if cold. Second mash 145° at 1½ barrels per quarter, stands half an hour. Third 165°, two barrels per quarter, stands half an hour. Fourth 130°, three barrels, stands two hours. The first wort to be boiled with 6lbs. of hops per quarter, for an hour and a half, the second worts to be boiled with the same hops two hours, and the remainder three hours. The whole to be now heated as low as 55°, if the weather permits, and put to work with about five pints of yeast per quarter; if the weather is too warm to get them down to 55°, a less porportion will be sufficient. The eight barrels of liquor first used, will be reduced to six of beer to each quarter; one barrel being left in the grains, and another evaporated in boilings, cooling, and working.

Table Beer from Treacle.

Another method, and for a smaller quantity, is, to put a pound of treacle to eight quarts of boiling water: add two bay leaves, and a quarter of an ounce of ginger in powder. Boil the whole for fifteen minutes, then let it become cool, and work it with yeast.

To Fine Cloudy Beer.

Rack off the cask, and boil one pound of new hops in water, with coarse sugar, and when cold, put it in at the bung-hole.

Or, new hops soaked in beer, and squeezed, may be put into the cask.

Or, take 10lbs. of baked pebblestone powder, with the whites of six eggs, and some powdered bay-salt, and mix them with two gallons of the beer. Pour in the whole into the casks, and in three or four days it will settle and the beer be fine and agreeable.

To restore pricked or stale Beer.

To about a quart of stale beer, put half a tea-spoonful of salt of wormwood: this will restore the beer, and make it sparkle when poured into a glass, like bottled porter.

To prevent Beer becoming stale and flat.

To a quart of French brandy put as much wheat or bean flour as will make it into a dough, and put in, in long pieces, at the bung-hole, letting it fall gently to the bottom. This will prevent the beer growing stale, keep it in a mellow state, and increase its strength.

To protect Malt Liquors against the Effects of Electricity.

As positive electricity is nothing more than oxygenous gas, which, when accumulated in conductors by electrical action, affects all fluids (as conductors), and enclosed fermented liquors among the rest, and as electrical action always takes place among the best conductors, so fermented liquors, whether in casks or bottles, may be protected from electrical action (vulgarly called thunder,) by placing on the casks, or over the bottles, pieces, or rods of iron; and such have been found, by experience, to serve as a sufficient protection against this pernicious influence.

To preserve Yeast.

Common ale yeast may be kept fresh and fit for use several months by the following method.—Put a quantity of it into a close canvas bag, and gently squeeze out the moisture in a screw-press, till the remaining matter be as firm and stiff as clay. In this state it may be close packed up in a tight cask for securing it from the air; and will keep fresh, sound, and fit for use, for a long time. This is a secret that might be of great use to the brewers and distillers, who, though they employ very large quantities of yeast, seem to know no method of preserving it or raising nurseries of it; for want of which they sustain a very considerable loss; whereas the brewers in Flanders make a very great advantage of supplying the malt distillers of Holland with yeast, which is rendered lasting and fit for carriage by this easy expedient.

To bottle Porter, Ale, &c.

In the first place, the bottles should be clean, sweet, and dry, the corks sound and good, and the porter or ale fine. When the bottles are filled, if for home consumption, they should not be corked till the day following; and if for exportation to a hot climate, they must stand three days or more, (if the liquor is new)—it should be well corked and wired, but for a private family they may do without wiring, only they should be well packed in sawdust, and stand upright. But if some ripe are wanted keep a few packed on their sides, so that the liquor may touch the corks—and this will soon ripen, and make it fit for drinking.

To make Ginger Beer.

To every gallon of spring water add one ounce of sliced white ginger, one pound of common loaf sugar, and two ounces of lemon juice, or three large tablespoonfuls; boil it near an hour, and take off the scum; then run it through a hair sieve into a tub, and when cool, (viz 70°) add yeast in proportion of half a pint to nine gallons; keep it in a temperate situation two days, during which it may be stirred six or eight times; then put it into a cask, which must be kept full, and the yeast taken off at the bung-hole with a spoon. In a fortnight add half a pint of fining (isinglass picked and steeped in beer) to nine gallons, which will, if it has been properly fermented, clear it by ascent. The cask must be kept full, and the rising particles taken off at the bung-hole. When fine (which may be expected in twenty-four hours) bottle it, cork it well, and in summer it will be ripe and fit to drink in a fortnight.

CHAP. III

VARNISHES AND CEMENTS.

Varnishes are of various colours and qualities, derived from the ingredients of which they consist. The bases of varnish are the resins dissolved in fixed oils, in volatile oils, or in alcohol. The chief, however, are common resin, lac, copal, amber, and Indian rubber; to these may be added mastich, anime, elemi, sandarach, turpentine, gamboge, dragon's blood, asphaltum, &c. &c. These substances are capable of solution in the one or the other, ana some of them in all, the three following menstrua: alcohol, volatile or essential oils, and fat or fixed oils. Gamboge, dragons's blood, &c., are added to the varnish merely to impart colour.

The following are some of the most approved forms of varnish.

Turpentine Varnish.

Take of black resin one pound and a half; of oil of turpentine two pints. Melt the resin, and after having removed it from the fire, mix in gradually, the turpentine. If necessary, strain.

A Common Varnish.

Take gum juniper eight ounces; Venice turpentine six ounces; rectified spirit of wine two pints. Digest in a gentle heat till the gums are dissolved.

A Transparent Varnish.

Take of gum juniper eight ounces; of Venice turpentine four ounces; of mastich two ounces; of rectified spirit of wine two pints. Digest till the ingredients are dissolved.

A White Hard Varnish.

Take of mastich four ounces; of gum juniper and Venice turpentine, of each three ounces; pounded glass, or very clean sand, to prevent the gums from forming an impenetrable lump, four ounces; rectified spirit of wine two pints. Digest till the gums are dissolved.

White Polishing Varnish.

Take of mastich two ounces; of gum juniper eight ounces; of elemi one ounce; of Strasburgh turpentine four ounces; of rectified spirit of wine one quart. This is used upon metal, and polished with pumice-stone powder.

A Copal Varnish.

Take of spirit of wine, fully saturated with camphor, four ounces; of copal, in fine powder, one ounce; dissolve and filter; to the filtered liquor add one pint of rectified spirit of wine, in which one ounce of elemi has been previously dissolved.

Another Copal Varnish.

Dissolve half an ounce of camphor in one pint of rectified spirit of wine; pour the solution on four ounces of copal reduced to small pieces; heat it so that the bubbles which rise may be counted; when cold, pour it off. More spirit may be added to the residuum. For pictures

Another Copal Varnish.

Take of copal, melted and poured into water, three ounces; of gum juniper six ounces; of mastich three ounces; of Strasburgh turpentine two ounces and a half; pounded glass four ounces; rectified spirit of wine one quart. Digest till the gums, &c., are dissolved. For metals, chairs, &c.

Another Copal Varnish.

Take oil of turpentine, thickened by keeping, eight ounces; of copal two ounces and a half. Apply a suitable heat.

Another Copal Varnish.

Take of oil of turpentine six ounces; oil of lavender, or oil of rosemary two ounces; copal one ounce. Use a suitable degree of heat.

A Soft Brilliant Varnish.

Take of gum juniper six ounces; of elemi four ounces; of gum anime one ounce; camphor half an ounce; of rectified spirit of wine one quart. For wood works and paste-board.

A Reddish Varnish.

Take of gum juniper eight ounces; of shell lac two ounces; of black resin four ounces; of Venice turpentine six ounces; of rectified spirit of wine one quart. This is used both upon wood and metals.

Furniture Varnish.

White wax eight ounces; oil of turpentine one pint. Melt the wax, and gradually mix in the turpentine.

Anotner Furniture Varnish.

Take yellow wax eight ounces, of linseed oil and oil of turpentine, of each half a pint; alkanet root two ounces. Digest the root in the oils, in a moderate heat, till they have acquired a deep red colour. Then, to the wax melted, gradually add the clear oils.

Red Varnish.

Take of gum juniper four ounces; seed lac two ounces; of mastich and choice benzoin, of each one ounce; of Venice turpentine two ounces; of rectified spirit of wine one quart. Used for violins and cabinet work.

Picture Varnish.

Take of mastich twelve ounces; Venice turpentine two ounces and a half; of camphor half a drachm; pounded glass, or clean sand, four ounces; oil of turpentine three pints and a half. Pour off the clear solution. Used for oil paintings.

Gold Varnish for Leather.

Take of turmeric root and gamboge, of each one scruple and a half; of oil of turpentine two pints; seed lac and gum juniper, of each four ounces; dragon's blood half an ounce; Venice turpentine two ounces; pounded glass, or clean sand, four ounces. Pour off the clear solution.

Transparent Japan Varnish for Tin Ware.

Take oil of turpentine eight ounces; oil of lavender six ounces; copal two ounces; camphor one drachm. Use a suitable degree of heat.

Le Blond's Varnish for Prints.

Take of balsam of capivi four pounds; copal in powder one pound. Add the copal by single ounces every day to the balsam, keeping it in a warm place, or in the sun, stirring it often. When all is dissolved, add a sufficient quantity of Chio turpentine.

A Varnish for Colored Drawings

Take of Canada Balsam one ounce; of oil of turpentine two ounces; warm them together, so that they may mix. The drawing should be first sized with a jelly of isinglass, and when dry, apply the varnish, which will make it resemble oil painting.

Black Japan Varnish for Leather.

Take boiled linseed oil one pint; burnt umber half a pound; asphaltum half an ounce. Boil, and add a sufficient quantity of oil of turpentine.

Varnish for Grates, or Brunswick Black.

Take of common asphaltum one pound; melt it, and add, gradually, half a pint of linseed oil, and one quart of oil of turpentine.

Varnish for Plaster Casts.

Take of white soap and white wax, of each, half an ounce, boiling water a quart.

A Varnish for Toilet Boxes, Cases, Fans, &c

Dissolve two ounces of gum mastic, and eight ounces of gum sandarac, in a quart of alkohol; then add four ounces of Venice turpentine.

Varnish for Earthenware

To make it white glass and soda in equal proportion must be pounded together, very fine, carefully sifted, and well mixed. The mixture must next be exposed to a strong heat till it is rendered very dry. It is after that to be put into vessels which have been already baked; it will then be melted, and the varnish is made. It may be applied in the usual manner

French soft Varnish for Engravers.

One ounce of virgin's wax, one ounce of asphaltum or Greek pitch, half an ounce of common pitch, and a quarter of an ounce of Burgundy pitch.

N. B.—The celebrated Vivares, the landscape engraver always used this varnish, in preference to any other.

To make Varnish for Oil Paintings.

According to the number of your pictures, take the whites of the same number of eggs, and to each picture take the bigness of a hazel-nut of white sugar-candy, dissolved, and mix it with a tea-spoonful of brandy; beat the whites of your eggs to a froth; then let it settle; take the clear, put to it your brandy and sugar, and varnish over your pictures with it; this is much better than any other varnish, as it is easily washed off when your pictures want cleaning again.

To make White Varnish.

Dissolve gum sandarac and gum mastic in spirits of wine: leave it to settle for two days; then strain it through a linen cloth, let it stand for some time, pour off the clear liquid, and bottle it for use.

A Varnish for preserving Insects, Fruit, &c.

Take one pound of rectified spirits of wine, and two ounces of white amber; add thereto an ounce of white sandarac and white mastic, an ounce and a half of Venice turpentine; digest the whole in balneo mariæ during forty eight hours, to an entire dissolution; take out the intestines of the insect you have a mind to preserve; lay them for some days in rectified spirits of wine, mixed with clarified sugar-candy; afterwards besmear them with your varnish till they are transparent as glass; in this manner you will preserve them a long time.

This varnish succeeds equally with vegetables and fruits, which never rot or decay when not affected by the exterior act, as has been observed with regard to cherries, which are preserved perfectly well by besmearing them with melted white wax.

Varnish for Pales and Coarse Wood Work.

Take any quantity of tar, and grind it with as much Spanish brown as it will bear, without rendering it too thick to be used as a paint or varnish, and then spread it on the pales, or other wood, as soon as convenient, for it quickly hardens by keeping.

This mixture must be laid on the wood to be varnished, by a large brush, or house-painter's tool; and the work should then be kept as free from dust as possible, till the varnish be thoroughly dry. It will, if laid on smooth wood, have a very good gloss, and is an excellent preservative of it against moisture: on which account, as well as its being cheaper, it is far preferable to painting, not only for pales, but for weather-boarding, and all other kinds of wood-work for grosser purposes. Where the glossy brown colour is not liked, the work may be made of a greyish brown, by mixing a small proportion of white lead, or whitening, or ivory black, with the Spanish brown.

To make Gold Varnish.

This ingenious process, which is at present employed throughout Europe, in gilding wooden frames, coaches, and various articles, and which was formerly used in the preparation of the now old-fashioned leather tapestry, was invented towards the end of the sixteenth century. The composition is as follows:—

Take gum lac, and having freed it from the filth and bits of wood with which it is mixed, put it into a small linen bag, and wash it in pure water, till the water becomes no longer red, then take it from the bag and suffer it to dry. When it is perfectly dry, pound it very fine, because the finer it is pounded, it will dissolve the more readily. Then take four parts of spirits of wine, and one of gum, reduced, as before directed, to an impalpable powder, so that for every four pounds of spirits you may have one of gum; mix these together, and having put them into an alembic, graduate the fire so that the gum may dissolve in the spirits. When dissolved, strain the whole through a strong piece of linen cloth; throw away what remains in the cloth, as of no use, and preserve the liquor in a glass bottle, closely corked. This is the gold varnish which may be employed for gilding any kind of wood.

When you wish to use it, you must, in order that the work may be done with more smoothness, employ a brush made of the tail of a certain quadruped called Vari, well known to those who sell colours for painting; and with this instrument dipped in the liquor, wash over gently, three times, the wood which has been silvered. You must, however, remember, every time you pass the brush over the wood, to let it dry; for, in so doing, your work will be extremely beautiful, and have a resemblance to the finest gold.

To make a Lacquer for Brass.

Take eight ounces of spirits of wine, and one ounce of arnotto, well bruised; mix this in a bottle by itself; then take one ounce of gamboge, and mix it in like manner, to the same quantity of spirits; also bruised saffron, steeped in spirits, to nearly the same proportion. After this take seed lac varnish, what quantity you please, and you may brighten it to your mind by the above mixture; if it be too yellow, add a little more from the arnotto bottle; and if it be too red, add a little more from the gamboge, or saffron bottle; if too strong, add a little spirits of wine, &c. Thus you may temper lacquer or varnish to what degree of perfection you please.

Varnish to prevent the Rays of the Sun from passing through the Glasses of Windows.

Pulverize gum tragacanth, and put it to dissolve for twenty-four hours in whites of eggs well beaten. Lay a coat of this on the panes of your windows with a soft brush, and let it dry.

To these varnishes we add the following forms for making laquer. Take seed lac, dragons's blood, annatto, and gamboge, of each one ounce; saffron two drachms; rectified spirit of wine two pints. Turmeric root one ounce; annatto one drachm; shell lac and gum juniper, of each, one ounce; of rectified spirit of wine one pint.—Seed lac three ounces; of amber and gamboge, of each two ounces; of a watery extract of red sanders half a drachm; dragon's blood one drachm; saffron half a drachm; rectified spirit of wine two pints and a quarter. Turmeric six drachms; saffron fifteen grains; rectified spirit of wine one pint and a quarter. Digest for eight days and strain; then add to the strained tincture, gum juniper and elemi, of each two ounces; dragon's blood and seed lac, of each one ounce

In the preparation of all the foregoing varnishes, the gums, &c. should all be either powdered or bruised; and, where not specifically mentioned, it will be found that a gentle, or moderate heat, and occasionally stirring of the ingredients, will accelerate the process, and render it more complete. As the articles are all more or less combustible, care must be taken that the heat be applied very cautiously, and that the flame of a candle, or other burning body, be not brought near to the evaporating fluids, as they will readily take fire, and much mischief may be the result.

CEMENTS

The following are some of the most approved Cements.

The juice of garlic used alone. Quicklime and the white of an egg mixed together, and used expeditiously. Quicklime and cheese: sweet cheese is to be shaved thin, and stirred with boiling hot water, which converts it into a tenacious slime. It is then to be worked with fresh quantities of hot water, and mixed upon a hot stone with a proper quantity of unslacked lime, into the consistence of a paste. This is a strong and durable cement for wood, stone, earthenware, and glass. Take by measure, two parts of litharge, one of unslacked lime, and one of flint-glass; let them be separately reduced to a very fine powder, and worked up into a paste with drying oil. For cementing wood, pitch, bullock's blood, linseed oil, and common turpentine, are to be melted together over a fire, in an iron pan, and as much brick-dust added, as will make them of the consistence of a thin paste. The tub or cask to which this is applied, must be perfectly dry before it is laid on; and the chinks or crevices filled up with tow while the cement is warm. Cheese produces an excellent cement by boiling it in water, stirring it until it is reduced to a glutinous state, and afterwards pouring upon it cold water, and kneading and pounding it.

Cement for Broken Glass.

Broken glass may be cemented so as to be as strong as ever, by interposing between the parts, glass ground up like a pigment, but of easier fusion than the pieces to be joined, and then exposing them to such a heat as will fuse the cementing ingredient without melting the pieces to be united. A glass for cementing broken pieces of flint-glass may be made by fusing some of the same kind of glass, previously reduced to powder, along with a little red-lead and borax, or with borax only.

A Cement for Derbyshire Spar and other Stones.

This may be made with about seven or eight parts of resin, one of bees-wax melted together, with a small quantity of plaster of Paris: when the ingredients are well mixed and nearly cold, the mass should be well kneaded together. The pieces of spar to be joined, must be heated until they will melt the cement, and then pressed together, some of the cement being previously interposed. Melted sulphur, applied to fragments of stones, previously heated to the melting point of sulphur, makes also a firm and durable joining. Little deficiences of the stone may be filled up with melted sulphur, in which some of the powder of the stone has been mixed.

Hot Cement for Building.

Hot cement for building, is made of resin, bees-wax, brick-dust, and chalk, boiled together. The bricks to be cemented, are to be heated and rubbed one upon another, with the cement between them.

A most excellent Glue.

Beat an ounce of isinglass to shreds: dissolve it gradually in a pint of brandy, by means of gentle heat, and then strain the solution through a piece of fine muslin. The glue thus obtained should be kept in glass closely stopped. When required for use, it should be dissolved with moderate heat, when it will appear thin, transparent and almost limpid. When applied in the manner of common glue, its effect is so powerful as to join together the parts of wood stronger than the wood itself is united. This glue dries into a very strong, tough, and transparent substance, not easily damaged by any thing but aqueous moisture, which renders it unfit for any use where it would be much exposed to wet or damp air.

Parchment Glue.

Take one pound of parchment, and boil it in six quarts of water till the quantity be reduced to one, then strain off the dregs, and boil it again till it be of the consistence of glue.

The same may be done with glovers cuttings of leather, which make a colourless glue, if not burnt in the evaporation of the water.

To make Lip Glue, for joining Paper, Silk, or thin Leather, &c.

Take of isinglass and parchment glues, of each one ounce; sugar candy and gum tragacanth, each two drachms; add to them an ounce of water, and boil the whole together till the mixture, when cold, is of the consistence of glue; then form the same into small rolls, or any other figure that may be most convenient, and it will be fit for use.

This glue may be wet with the tongue, and rubbed on the edges of the paper, silk, or leather, that are to be joined; and on being laid together, and suffered to dry, they will be united as firmly as any other part of the substance.

Preparation of common Cement for joining Alabaster Marble, Porphyry, or other stones.

Take of bees-wax two pounds, and of rosin one pound, melt them, and add one pound and a half of the same kind of matter, powdered, as the body to be cemented is composed of, strewing it into the melted mixture, and stirring them well together, and afterwards kneading the mass in water, that the powder may be thoroughly incorporated with wax and rosin. The proportion of the powdered matter may be varied, where required, in order to bring the cement nearer to the colour of the body on which it is employed.

This cement must be heated when applied; as must also the parts of the subject to be cemented together; and care must be taken likewise, that they be thoroughly dry.

When this composition is properly managed, it forms an extremely strong cement, which will even suspend a projecting body of considerable weigh, after it is thoroughly dry and set, and is therefore of great use to all carvers in stone, or others who may have occasion to join together the parts of bodies of this nature.

Melted sulphur, applied to fragments of stones previously heated (by placing them before a fire) to at least the melting point of sulphur, and then joined with the sulphur between, makes a pretty firm and durable joining. Chips out of corners, and similar little deficiences in the stone, may also be filled up with melted sulphur, in which some of the powder of the stone has been mixed; but the stone should be previously heated.

Strong Cement.

To prevent the escape of the vapours of water, spirit, and liquors not corrosive, the simple application of slips of moistened bladder will answer very well for glass, and paper with good paste for metal. Bladder, to be very adhesive, should be soaked some time in water moderately warm, till it feels clammy, it then sticks very well; if smeared with white of eggs instead of water, it adheres still closer.

Cement for Iron Flues.

Common salt and sifted wood ashes, equal parts, made into a paste with water, make a good cement for iron flues, &c., better than most other compositions, and may be applied when the flue is hot or cold. Iron-filings and vinegar will do as well, or rather iron-filings moistened with diluted muriatic acid. These are commonly used for filling up the spaces between cylinders.

Blood Cement for repairing Copper Boilers, &c. &c.

This cement is often used by coppersmiths, to lay over the rivets and edges of the sheets of copper, in large boilers, to serve as an additional security to the joinings, and to secure cocks, &c. from leaking; it is made by mixing pounded quick-lime with ox's blood. It must be applied fresh made, as it soon gets so hard as to be unfit for use.

If the properties of this cement were duly investigated, it would be found useful for many purposes to which it has never been yet applied. It is extremely cheap, and very durable.

Composition for a Cement to resist the Action of Fire and Water.

Take half a pint of milk, and mix with it an equal quantity of vinegar, so as to coagulate the milk. Separate the curds from the whey, and mix the latter with the whites of four or five eggs, after beating them well up. The mixture of these two substances being complete, add sifted quick-lime, and make the whole into a thick paste of the consistency of putty. If this mastich is carefully applied to broken bodies, or to fissures of any kind, and dried properly, it resists water and fire.

Turkey Cement for Metals, Glass, &c.

The jewellers in Turkey, who are mostly Armenians, have a curious method of ornamenting watch cases, and similar things, with diamonds and other stones, by simply glueing them on. The stone is set in silver and gold, and the lower part of the metal made flat, or to correspond with the part to which it is to be fixed; it is then warmed gently, and the glue applied, which is so very strong that the parts never separate. This glue, which may be applied to many purposes, as it will strongly join bits of glass or polished steel, is thus made.

Dissolve five or six bits of mastic, as large as peas, in as much spirits of wine as will suffice to render it liquid; in another vessel dissolve as much isinglass (which has been previously soaked in water till it is swollen and soft) in French brandy or in rum, as will make two ounces, by measure, of strong glue, and add two small bits of gum galbanum, or ammoniacum, which must be rubbed or ground till they are dissolved; then mix the whole with a sufficient heat. Keep it in a phial stopped; and when it is used set it in hot water.

Excellent Cement for Broken China,

May be made from a mixture of equal parts of glue, white of egg, and white lead.

Cement to mend Broken China or Glass.

Garlic stamped in a stone mortar, the juice whereof, when applied to the pieces to be joined together, is the finest and strongest cement for that purpose, and will leave little or no mark if done with care.

To prepare a Cement for joining Broken Glass, China, Earthenware, &c.

Take two ounces of good glue, and steep it for a night in distilled vinegar; boil them together the next day; and having beaten a clove of garlic, with half an ounce of ox-gall, into a soft pulp, strain the juice through a linen cloth, using pressure, and add the same to the glue and the vinegar. Then take gum sandarach powdered, and turpentine, of each one drachm, and of sarcocol and mastic powdered, each half a drachm, and put them into a bottle, with an ounce of highly rectified spirits of wine. Stop the bottle, and let the mixture stand for three hours in a gentle heat, frequently shaking it. Mix this tincture also with the glue while hot, and stir them well together with a stick or tobacco pipe, till part of the moisture be evaporated; then take the composition from the fire, and it will be fit for use. When this cement is to be applied, it must be dipt in vinegar, and then melted in a proper vessel, with a gentle heat; and if stones are to be cemented, it is proper to mix with it a little powdered tripoli or chalk; or if glass is to be conjoined, powdered glass should be substituted.

For the uniting the parts of broken china, or earthenware vessels, as also glass, where the rendering the joint visible is not of consequence, the following composition, which is much more easily prepared, may be substituted for the foregoing.

Take an ounce of Suffolk cheese, or any other kind devoid of fat, grate it as small as possible, and put it, with an equal weight of quicklime, into three ounces of skim milk; mix them thoroughly together, and use the composition immediately.

Where the broken vessels are for service only, and the appearance is not to be regarded, the joints may be made equally strong with any other part of the glass, by putting a slip of thin paper, or linen, smeared with this cement, over them, after they are well joined together by it. This method will make a great saving in the case of glasses employed for chemical, or other similar operations.

Drying oil, with white lead, is also frequently used for cementing china and earthenware; but where it is not necessary the vessels should endure heat or moisture, isinglass glue, with a little tripoli or chalk, is better.

To stop Cracks in Glass Vessels.

The cracks of glass vessels may be mended by daubing them, with a suitable piece of linen, over with white of egg, strewing both over with finely powdered quicklime, and instantly applying the linen closely and evenly.

Cement for preserving Wood and Brick.

This composition is formed of the following materials, viz. mineral or coal tar, pulverized coal, (charcoal is esteemed the best) and well fined-slaked lime; the coal and lime to be well mixed together, proportioned at about four-fifths coal and one-fifth lime; the tar to be heated, and while hot, thickened with the mixture of coal and lime, until it becomes so hard that it may be easily spread upon the surface of a board, and not run when hot. Turpentine or pitch will answer nearly as well as tar, and plaster of Paris will answer instead of lime; to be used in the same manner, and in about the same proportions. The cement must be applied warm, and is found to be used easiest with a trowel

CHAP. IV.

BLEACHING, DYEING, SCOURING, &c.

Linen as it comes from the loom is charged with what is called the weaver's dressing, which is a paste of flour boiled with water. To discharge this paste the linen must be steeped in water for about forty-eight hours, when this extraneous substance undergoes a kind of fermentation, which does not extend to the linen itself. The linen being well washed after this fermentation, contains nothing that water can separate.

In this state the cloth is committed to the bleacher, and the process of whitening commences.

Under what is called the old system, Bleaching consists of the following operations:

Steeping and Milling.—Steeping is made use of for cleansing the cloths designed to be bleached, and is effected by either plain water, equal parts of ley and water, or rye-meal or bran mixed with water. The liquids are used blood warm. After steeping, the cloth is carried to the put-stock-mill to be freed from all its loose foulness.

Bucking and Boiling.—This is the most important part of the whole process; it consists in boiling the cloths in caustic alkaline ley, by a heat gradually raised, and thereby dissolving and taking off the colouring matter.

Boiling, in the bleaching of linen cloth, is only used when the goods are nearly white, with pearl ashes alone, or with pearl ashes along with soap towards the end of the whitening process.

Alternate Watering and Drying.—After the cloth has been bucked, it is carried out to the field, and frequently watered for the first six hours: for if, during that time when it is strongly impregnated with salt, it be allowed to dry, the salt, in conjunction with other circumstances, will destroy its texture. After this time, however, dry spots are allowed to appear before it gets any water. In this state it profits most.

Souring or Acidifying.—Frequent buckings and bleaching load the cloth with earthy, or alkaline neutral salts, which nothing but acids can remove. The acid liquors commonly used are butter-milk, which is reckoned the best, sour milk, infusion of bran, rye-meal, &c. kept for some days until they turn sour. The linen ought to be dried, before it is put in the sour. Diluted sulphuric acid is sometimes employed instead of the acids above mentioned. The sours are used strongest at first, and gradually weakened till the cloth has attained its whiteness.

Soaping and Hand-rubbing.—After the cloth comes from the scouring, it should be well washed in the washing mill. From this mill the fine cloth is carried to be rubbed with women's hands, by soft soap and warm water. Coarse cloths are laid on a table run over with soap, and put between rubbing boards, which have ridges and grooves. These boards are either moved by hand or by a water wheel. The cloth is either drawn by degrees through them by men, or by an apparatus.

Starching and Blueing.—The last operation is too simple to need a particular detail: it is conducted in the common mode to which laundry-women are accustomed.

The same processes, with modifications are applicable to cotton, silk, wool, &c.

Such, till of late years, was the usual method of bleaching linen cloths, without any essential variation; but, it being supposed that oxygen gas was the principal agent in bleaching, to hasten this process by a more manageable and concentrated application ofoxygen, has been the united efforts of modern chemistry.

The discovery of the oxygenated muriatic acid, now called *chlorine*, has accomplished almost every desideratum, and opened a mode of practice which has superseded almost every other. After repeated trials, it has been discovered, that this acid can be combined with the alkaline earths, as lime and barytes, and also with magnesia, by these means forming oxymuriates which are soluble in water, and have the property of bleaching. The oxymuriate of lime is at present used in almost all the bleaching grounds in the united kingdom.

Upon the use of the agent, chlorine, therefore does the expedition and whiteness of modern bleaching principally depend. We cannot, however, avoid observing, that although we think with care, a good chemist can always apply this powerful assistant in the art of bleaching to advantage, yet it is in too many instances, and in the hands of bungling and avaricious persons, an agent which will very much contribute to the destruction of the cloth. It cannot be denied, that there is still a demand for cloths bleached after the old method.

Expeditious Method of taking out Stains from Scarlet, or Velvet of any other colour.

Take soap wort, bruise it, strain out its juices, and add to it a small quantity of black soap. Wash the stain with this liquor, suffering it to dry between whiles, and by this method the spots will in a day or two entirelv disappear.

To make portable Balls for removing spots from Clothes in general.

Take fuller's earth, perfectly dried, so that it crumbles into a powder; moisten it with the clear juice of lemons, and add a small quantity of pure pearl ashes; then work and knead the whole carefully together, till it acquires the consistence of a thick elastic paste; form it into convenient small balls, and expose them to the heat of the sun, in which they ought to be completely dried. In this state they are fit for use in the manner following:—First, moisten the spot on your clothes with water, then rub it with the ball just described, and suffer it again to dry in the sun: after having washed the spot with pure water, it will entirely disappear

The Fumes of Brimstone useful in removing Spots or Stains in Linen, &c.

If a red rose be held in the fumes of a brimstone-match, the colour will soon begin to change, and at length, the flower will become white. By the same process, fruit stains or iron-moulds may be removed from linen or cotton cloths, if the spots be previously moistened with water. With iron-moulds, weak muriatic acid is preferable, assisted by heat; as by laying the cloth on a tea-pot or kettle, filled with boiling water.

To remove Spots of Grease from Paper.

Take an equal quantity of roach alum, burnt, and flower of brimstone, finely powdered together; wet the paper a little, and put a small quantity of the powder on the place, rubbing it gently with your finger, and the spot will disappear.

To Bleach Silk.

Take a solution of caustic soda, so weak as to make only a fourth of a degree, at most, of the areometer for salts, and fill with it the boiler of the apparatus for bleaching with steam. Charge the frames with skeins of raw silk, and place them in the apparatus until it is full; then close the door and make the solution boil. Having continued the ebullition for twelve hours, slacken the fire, and open the door of the apparatus. The heat of the steam, which is always above 250°, will have been sufficient to free the silk from the gum, and to scour it. Wash the skeins in warm water, and, having wrung them, place them again on the frames in the apparatus, to undergo a second boiling. Then wash them several times in water, and immerse them in water somewhat soapy, to give them a little softness. Notwithstanding the whiteness which silk acquires by these different operations, it must be carried to a higher degree of splendor by exposing it to the action of sulphurous acid gas, in a close chamber, or by immersing it in sulphurous acid, as before recommended for wool.

Substitute for Salt of Sorrel for removing Ink Spots or Iron-moulds.

Take six parts of crystals of tartar, in powder, three parts of alum, likewise pulverized, and use them in the same manner as salt of sorrel.

To take Iron-moulds out of Linen.

Hold the iron-mould on the cover of a tankard of boiling water, and rub on the spot a little juice of sorrel and a little salt, and when the cloth has thoroughly imbibed the juice, wash it in lee.

To remove Spots of Grease from Books and Prints.

After having gently warmed the paper stained with grease, wax, oil, or any fat body whatever, take out as much as possible of it, by means of blotting paper. Then dip a small brush in the essential oil of well-rectified spirit of turpentine, heated almost to an ebullition (for when cold, it acts only very weakly), and draw it gently over both sides of the paper, which must be carefully kept warm. The operation must be repeated as many times as the quantity of the fat body imbibed by the paper, or the thickness of the paper, may render necessary. When the greasy substance is entirely removed, recourse may be had to the following method to restore the paper to its former whiteness, which is not completely restored by the first process. Dip another brush into highly rectified spirit of wine, and draw it, in like manner, over the place which was stained, and particularly round the edges, to remove the border, that would still present a stain. By employing these means, with proper caution, the spot will totally disappear; the paper will resume its original whiteness; and if the process has been employed on a part written on with common ink, or printed with printer's ink, it will experience no alteration.

To take Spots out of Cloths, Stuffs, Silks, Cotton, and Linen.

Take two quarts of spring water, put in it a little fine white pot-ash, about the quantity of a walnut, and a lemon cut in slices; mix these well together, and let it stand for twenty-four hours in the sun; then strain it off, and put the clear liquid up for use. This water takes out all spots, whether pitch, grease, or oil, as well in hats, as cloths and stuffs, silk or cotton, and linen. As soon as the spot is taken out, wash the place with fair water; for cloths of a deep colour, add to a spoonful of the mixture, as much fair water as to weaken it.

Grease spots in cloths may be removed by using soap and water with a tooth or nail brush, and afterwards wiping off the lather with the wet corner of a towel. Essence of lemon, or pure spirit of turpentine, will remove pitch from cloth, &c.

In woollen cloth, an easier method is to scrape off the hard tallow with the edge of a tea spoon, then rub the part briskly with a clean woollen rag, shifting the rag as the part becomes dirty; or, place some blotting paper on the spot, and press it with a hot iron, occasionally moving the paper.

To Full Cloths, Woollens, &c.

The method of fulling woollen stuffs with soap, is this; —a colored cloth, of about forty-five ells, is to be laid in the usual manner in the trough of a fulling mill, without first soaking it in water, as is commonly practised in many places. To full this trough of cloth, fifteen pounds of soap are required, one half of which is to be melted in two pails of river, or spring water, made as hot as the hand can well bear it. This solution is to be poured by little and little upon the cloth, in proportion as it is laid in the trough; after which it is to be taken out and stretched. This done, the cloth is immediately returned into the same trough, without any new soap, and there fulled for two hours more. Then taking out, it is wrung well, to express all the grease and filth. After the second fulling, the remainder of the soap is dissolved in as in the former, and cast four different times on the cloth, remembering to take out the cloth every two hours to stretch it, and undo the plaits and wrinkles it has acquired in the trough. When sufficiently fulled, and brought to the quality and thickness required, scour it in hot water, keeping it in the trough till it is quite clean. As to white cloths, as these full more easily and in less time than colored ones, a third part of the soap may be spared.

To clean Cotton Gowns.

Make a solution of soap, put in the articles, and wash them in the usual way. If greens, reds, &c. run, add lemon juice, vinegar, or oil of vitriol, to the rinsing water.

To clean Scarlet Cloth.

Dissolve the best white soap, and if black-looking spots appear, rub dry soap on them; while the other soap is dissolving, with hot water, brush it off. If very dirty, immerse the article into the warm solution, and rub the stained parts. Dispatch it quickly, and as soon as the colour begins to give, wring it out, and immerse it in a pan or pail of warm water; wring it again, and immerse it in cold spring water, in which mix a table-spoonful of solution of tin. Stir it about, and in ten minutes, hang it to dry in the shade, and cold press it.

Process for preparing nitrous Acid for extracting Stains, &c. from tanned Leather.

Take half a pint of water, a quarter of a pint of nitrous acid, and half an ounce of salts of lemon. Put the water in a bottle, and add the nitrous acid to it, and afterwards the salts of lemon; when the heat which is caused by this mixture has subsided, add half a pint of skimmed milk; shake them occasionally for three or four days, and the liquor will be fit for use.

The Application.—With a brush and soft water clean the surface of the leather from all grease, dirt, &c. Next scrape on it a little Bath brick, or white free sand; add a little of the above liquor, and with a brush scour it well, repeating this process till the whole has been gone over: then, with a clean sponge and water, wash off what remains of the brick: leave the leather to dry gradually, and it will be of a light new colour. If it is wished to b darker, brush it with a hard brush a little before it is dry, and it will be of a rich brown tinge.

To clean White Veils.

Put the veil in a solution of white soap, and let it simmer a quarter of an hour. Squeeze it in some warm water and soap, till quite clean. Rinse it from soap, and then in clean cold water, in which is a drop of liquid blue. Then pour boiling water on a tea-spoonful of starch, run the veil through this, and clear it well by clapping it. Afterwards pin it out, keeping the edges straight and even.

To Clean and Starch Point Lace.

Fix the lace in a prepared tent, draw it straight, make a warm lather of Castille soap, and, with a fine brush dipped in, rub over the point gently; and when it is clean on one side, do the same to the other; then throw some clean water on it, in which a little alum has been dissolved, to take off the suds, and having some thin starch, go over with the same on the wrong side, and iron it on the same side when dry, then open it with a bodkin, and set it in order.

To clean point lace, if not very dirty, without washing; fix it in a tent as the former, and go over with fine bread, the crust being pared off, and when it is done, dust out the crumbs, &c.

To take Wax out of Velvet of all Colours, except Crimson.

Take a crumby wheaten loaf, cut it in two, toast it before the fire, and, while very hot, apply it to the part spotted with wax. Then apply another piece of toasted bread, hot as before, and continue this application till the wax is entirely taken out.

To Wash and Stain Tiffanies.

Let the hems of the tiffanies be at first only a little soaped, then having a lather of soap, put them into it hot, and wash them very gently for fear they should be crumpled; and when they are clean, rinse them in warm water, in which a little gum arabic has been dissolved, keeping them from the air as much as possible; then add a lump of starch, wet the tiffanies with a soft linen rag, and fold them up in a clean cloth, pressing them till they are near dry; after which, put them near the fire, and finish the drying over brimstone; then shape them properly, by gently ironing them.

To Wash and Starch Lawns.

Lawns may be done in the same manner as the former, only observe to iron them on the wrong side, and use gum arabic water instead of starch, and, according to what has been directed for sarcenets, any coloured silks may be starched, abating or augmenting the gum water, as may be thought fit, according to the stiffness intended.

To take out spots of Ink.

As soon as the accident happens, wet the place, with juice of sorrel or lemon, or with vinegar, and the best hard white soap.

To take the Stains of Grease from Woollen or Silk.

Three ounces of spirits of wine, three ounces of French chalk, powdered, and five ounces of pipe-clay. Mix the above ingredients, and make them up in rolls about the length of a finger, and you will find a never-failing remedy for removing grease from woollen or silken goods.

N. B. – It is to be applied by rubbing on the spot either dry or wet, and afterwards brushing the place.

To take out Spots on Silk.

Rub the spots with spirit of turpentine; this spirit exhaling, carries off with it the oil that causes the spot.

To Bleach Prints and Printed Books

Simple immersion in oxygenated muriatic acid, letting the article remain in it a longer or shorter space of time, according to the strength of the liquor, will be sufficient to whiten an engraving: if it is required to whiten the paper of a bound book, as it is necessary that all the leaves should be moistened by the acid, care must be taken to open the book well, and to make the boards rest on the edge of the vessel, in such a manner that the paper alone shall be dipped in the liquid; the leaves must be separated from each other, in order that they may be equally moisted on both sides.

To Wash Chintz.

Take two pounds of rice, boil it in two gallons of water till soft; then pour the whole into a tub; let it stand till about the warmth in general used for colouring linens; then put the chintz in, and use the rice instead of soap, wash it in this, till the dirt appears to be out, then boil the same quantity as above, but strain the rice from the water, and mix it in warm clear water. Wash in this till quite clean; afterwards rinse it in the water which the rice has been boiled in, and this will answer the end of starch, and no dew will affect it. If a gown, it must be taken to pieces, and when dried, be careful to hang it as smooth as possible;—after it is dry, rub it with a sleek stone, but use no iron.

To Wash Fine Lace or Linen.

Take a gallon of furze blossoms and burn them to ashes, then boil them in six quarts of soft water; this, when fine, use in washing with the suds, as occasion requires, and the linen, &c. will not only be exceedingly white, but it is done with half the soap, and little trouble.

To Clean Black and White Sarcenets.

Lay these smooth and even upon a board, spread a little soap over the dirty places; then make a lather with Castile soap, and with a common brush, dip it in, pass it over the long way, and repeat it in this manner, till one side is sufficiently scoured; use the other in the same manner; then put it into hot water, and there let it lie, till you have prepared some cold, wherein a small quantity of gum arabic has been dissolved. Now rinse them well, take out and fold them, pressing out the water with the hands on the board, and keeping them under the hands till they are dry; at which time, have brimstone ready to dry them over, till they are ready for smoothing, which must be done on the right side, with a moderate hot iron.

Easy and safe method of discharging Grease Spots from Woollen Cloths.

Fuller's earth, or tobacco pipe-clay, being put wet on an oil spot absorbs the oil as the water evaporates, and leaves the vegetable or animal fibres of cloth clean, on being beaten or brushed out. When the spot is occasioned by tallow or wax, it is necessary to heat the part cautiously by an iron or the fire, while the cloth is drying. In some kinds of goods, blotting paper, bran, or raw starch, may be used with advantage.

To take Spots effectually out of Silk, Linen, or Woollen.

Spirits of turpentine, twelve drops, and the same quantity of spirits of wine; grind these with an ounce of pipemaker's clay, and rub the spots therewith. You are to wet the composition when you do either silk, linen, or woollen with it; let it remain till dry, then rub it off, and the spot or spots will disappear.

True spirits of salts diluted with water, will remove iron-moulds from linen; and sal ammoniac, with lime, will take out the stains of wine.

To clean Black Veils.

Pass them through a warm liquor of bullock's gall and water: rinse in cold water; then take a small piece of glue, pour boiling water on it, and pass the veil through it; clap it, and frame it to dry.

To clean Coloured Silks of all kinds.

Put some soft soap into boiling water, and beat it till dissolved in a strong lather. At a hand heat put in the article. If strong, it may be rubbed as in washing; rinse it quickly in warm water, and add oil of vitriol, sufficient to give another water a sourish taste, if for bright yellows, crimsons, maroons, and scarlets; but for oranges, fawns, browns, or their shades, use no acid. For bright scarlet, use a solution of tin. Gently squeeze, and then roll it in a coarse sheet, and wring it. Hang it in a warm room to dry, and finish it by calendering or mangling.

For pinks, rose colours, and thin shades, &c. instead of oil of vitriol, or solution of tin, prefer the juice of lemons, vinegar, or white tartar.

For blues, purples, and their shades, add a small quantity of American pearl-ash; it will restore the colours. Wash the articles like a linen garment, but instead of wringing, gently squeeze and sheet them, and when dry, finish them with fine gum water, or dissolved isinglass, to which add some pearl-ash, rubbed on the wrong side, then pin them out.

Blues of all shades are dyed with archil, and afterwards dipped in a vat; twice cleaning with pearl-ash, restores the colour. For olive greens, a small quantity of verdigris dissolved in water, or a solution of copper, mixed with the water, will revive the colour again.

To clean Black Silks.

To bullock's gall, add boiling water sufficient to make it warm, and with a clean sponge, rub the silk well on both sides, squeeze it well out, and proceed again in like manner. Rinse it in spring water, and change the water till perfectly clean, dry it in the air, and pin it out on a table; but first dip the sponge in glue water, and rub it on the wrong side; then dry it before a fire.

To Dip Rusty Black Silks.

If it requires to be red dyed, boil logwood, and in half an hour, put in the silk, and let it simmer half an hour. Take it out, and dissolve a little blue vitriol and green copperas, cool the copper, let it simmer half an hour, then dry it over a stick in the air. If not red dyed, pin it out, and rinse it in spring water, in which half a tea-spoonful of oil of vitriol has been put. Work it about five minutes, rinse it in cold water, and finish it by pinning and rubbing it with gum water.

To clean Silk Stockings.

Wash with soap and water; and simmer them in the same for ten minutes, rinsing in cold water. For a blue cast, put one drop of liquid blue, into a pan of cold spring water, run the stockings through this a minute or two, and dry them. For a pink cast, put one or two drops of saturated pink dye into cold water, and rinse them through this. For a flesh-colour, add a little rose pink in a thin soap-liquor, rub them with clean flannel, and calender or mangle them.

To clean Paper Hangings.

Cut into eight half quarters a stale quartern loaf; with one of these pieces, after having blown off all the dust from the paper to be cleaned by means of a good pair of bellows, begin at the top of the room, holding the crust in the hand, and wiping lightly downward with the crumb, about half a yard at each stroke, till the upper part of the hangings is completely cleaned all round: then go again round with the like sweeping stroke downward, always commencing each successive course a little higher than the upper stroke had extended, till the bottom be finished. This operation, if carefully performed, will frequently make very old paper look almost equal to new. Great caution must be used not by any means to rub the paper hard, nor to attempt cleaning it the cross or horizontal way. The dirty part of the bread too must be each time cut away, and the pieces renewed as soon as at all necessary.

To Raise the Nap on Cloth.

Soak in cold water for half an hour, then put on a board, and rub the thread-bare parts with a half-worn hatter's card, filled with flocks, or with a prickly thistle, until a nap is raised. Hang up to dry, and with a large brush lay the nap the right way.

To Revive Faded Black Cloth.

Having cleaned it well, boil two or three ounces of logwood for half an hour. Dip it in warm water and squeeze it dry, then put it into the copper, and boil half an hour

Take it out and add a small piece of green copperas, and boil it another half hour. Hang it in the air for an hour or two, then rinse it in two or three cold waters, dry it and let it be regularly brushed with a soft brush, over which a drop or two of oil of olives has been rubbed.

To make Breeches Ball.

Mix one pound of Bath brick, two pounds of pipe clay, four ounces of pumice stone powder, and six ounces of ox gall; colour them with rose pink, yellow ochre, umber, Irish slate, &c., to any desired shade.

Clothes' Ball.

Mix two pound of pipe clay, four ounces of Fuller s earth, four ounces of whiting, and a quarter of a pint of ox gall.

To prepare a Chemical Liquid for Cleansing Boot Tops, &c. &c.

Mix in a phial, one drachm of oxy-muriate of potass, with two ounces of distilled water; and when the salt is dissolved, add two ounces of muriatic acid. Then shake well together, mix in another phial, three ounces of rectified spirit of wine with half an ounce of the essential oil of lemon, unite the contents of the two phials, and keep the liquid thus prepared, closely corked for use. This chemical liquid should be applied with a clean sponge, and dried in a gentle heat; after which, the boot-tops may be polished with a proper brush so as to appear like new leather.

To clean Marble.

Take verdigris and pumice-stone, well powdered, with lime newly slaked. Mix with soap lees. to the consistence of putty Put it in a woollen rag, and rub the stains well one way. Wash off with soap and water. Repeat, if not removed.

To take Stains out of Silver Plate.

Steep the plate in soap leys for the space of four hours; then cover it over with whiting, wet with vinegar, so that it may stick thick upon it, and dry it by a fire; after which, rub off the whiting, and pass it over with dry bran, and the spots will not only disappear, but the plate will look exceedingly bright.

To take Mildew out of Linen.

Rub it well with soap, then scrape some fine chalk, and rub that also in the linen; lay it on the grass; as it dries, wet it a little, and it will come out after twice doing.

To clean all sorts of Metal.

Mix half a pint of refined neat's-foot oil, and half a gill of spirits of turpentine. Scrape a little kernel or rotten stone; wet a woollen rag therewith, dip it into the scraped kernel, and rub the metal well. Wipe it off with a soft cloth, polish with dry leather, and use more of the kernel. In respect to steel, if it is very rusty, use a little powder of pumice with the liquid, on a separate woollen rag first.

To take Stains out of Mahogany.

Mix six ounces of spirit of salts, and half an ounce of rock salt of lemons, powdered, together. Drop a little on the stains, and rub it with a cork till it disappear. Wash off with cold water.

DYEING.

The art of dyeing is of two distinct kinds, one consisting of plain dyeing, in which one uniform colour is diffused over the substance to be dyed: and the other in fixing a variety of coloured patterns on a uniform ground; this last is termed calico-dyeing, because calico or cotton, is the material usually employed for the purpose. But we cannot enlarge on this last.

In domestic dying, few utensils are necessary, and those can, in general, be supplied from every kitchen or wash-house.

In dyeing, every article destined to receive any colour, should be previously made clean, and perfectly free from grease, or oleous matter. Wool, which is naturally of a greasy nature, requires to be scoured before it is dyed. Silk should be washed with soap and warm water; and cotton and linen require bleaching, and scouring in an alkaline ley.

The substances commonly dyed are animal, consisting of wool, silk, hair, leather, and skins of all kinds, or vegetable, such as cotton, flax, and hemp.

A most important and essential difference exists between the affinity for colouring matter, possessed by these substances, so that a process which perfectly succeeds in dyeing wool, for example, may have no effect upon cotton: neither is there any agreement in quantity of colouring ingredient, necessary to dye each stuff. Generally speaking, however, wool has the strongest affinity for colour, taking it most easily, and retaining it most firmly; silk and other animal matters come next to wool, cotton next, and hemp and flax last: but, however, it does not always happen, that substances which take colour the easiest, retain it the longest.

Mordants.

Of the great variety of known dyes, some (comparatively few,) can be applied to animal or vegetable fibre, without any other preparation, than that of cleansing the stuff, and immersing it in a decoction or infusion of the dye, for a sufficient time. On the other, hand, the greater number of dyes are not permanent, unless the cloths, or other matter to be dyed, be previously impregnated with what has been termed a MORDANT, (generally a salt with an alkaline, earthy, or metallic basis,) which possesses a very strong affinity both with fibre, and with colouring matter, and hence serves to bind the one to the other. The usual practice is, first to steep the cloth or fibre in the mordant, and afterwards in the dye. The first kind of dyes are called substantive, the latter adjective colours.

Madder, for instance, is an adjective colour, since it is rendered much more durable by the medium of alum, or of many other salts, than when used alone.

Indigo is a substantive colour, as its durability is not increased by any mordant whatever.

The permanence of colours is also of considerable importance in the art of dyeing. Adjective as well as substantive colours, vary very much in this respect. Indigo is a very permanent colour, resisting the sun, air, washing with soap, and most chemical agents. The oriental honne, which is a fine orange red, long resists the sun and air, but is altered and destroyed by soap. Archil and other of the purple lichens, are instantly altered by soap, and are soon changed by light and air.

Of the adjective colours, madder is one of the most permanent known, retaining, when applied, its body of colour, under almost every circumstance.

Cochineal on wool, is nearly equally fast or permanent, but on cotton much less so.

Brazil-wood fades much sooner than the last, whatever mordant is applied.

Linen or cotton, requires a different mordant from wool or silk; and some colours adhere only to a particular mordant. The selection, strength, and proper application of mordants, with many other smaller circumstances, are of infinite consequence in dyeing, and form the truly scientific part of this beautiful art.

Mordants not only fix colouring matter, but they most commonly, in some degree, alter the natural hue. Thus an aluminous mordant, changes the dull red of madder to a bright crimson; the solutions of tin, not only fix the colour of cochineal in wool, but change it from a crimson to a bright scarlet; the salts of iron, which are powerful mordants, always alter the colour of dyes,—the yellow of weld, to olive-brown, drab, or lead-colour, according to circumstances; the red of madder to a violet brown, and striking a blueish-black, whenever the gallic acid is present. Hence a great advantage is most ingeniously made of mixing different mordants to produce varieties of shade; thus a mixture of the iron and aluminous mordant, will produce with madder, all the shades of pea-colour, purple, and violet: with weld, brown, olive-green, and the like: so that with no more than three or four colouring materials, an almost infinite variety of dyes may be produced by a due selection and mixture of the various mordants.

The substances principally used as mordants are earths, metallic oxyds, tannin, and oil.

Of earthy mordants, the most important, and most generally used, is alum. It is dissolved in water, and very often a quantity of tartar is dissolved along with it. Into this solution the cloth is put, and kept in it till it has absorbed as much alum as is necessary. It is then taken out, and for the most part washed and dried.

Acetate of alum, however, answers much better than common alum. It is prepared by pouring acetate of lead into a solution of alum; an insoluble compound is formed by the lead and sulphuric acid in the alum, which precipitates, and the acetate of alum remains dissolved in the liquid.

small quantity the shade is light; and it becomes deeper as the quantity increases. And all those colours which the dyers call compound colours, are, in fact, two different colours applied to the cloth at once. Thus cloth becomes green by being dyed first blue and then yellow.

Innumerable as are the different colours, and shades of colours, communicated, they all originate from four or five primary colours, which are as follow: blue, yellow, red, black, and fawn; or, as this last is sometimes called, root, or brown-colour.

Blue Dyes.

The only two substances employed in dyeing blue are woad and indigo.

Indigo requires no mordant; every kind of cloth may be dyed with it as follows: let one part of indigo be dissolved in four parts of sulphuric acid; to the solution add one part of dry carbonate of potash, and then it is to be diluted with eight times its weight of water. The cloth must be previously boiled for an hour in a solution containing five parts of alum, and three of tartar, for every thirty-two parts of cloth. It is then to be thrown into a water bath, containing a greater or smaller proportion of the diluted sulphate of indigo, according to the shade which the cloth is intended to receive. In this bath it must be boiled till it has acquired the wished for colour. The alum and tartar facilitate the decomposition of the sulphate of indigo; the alkali answers the same purpose.

There are many other methods of dyeing with indigo. but we cannot describe them.

Silk is dyed light blue by a ferment of six parts bran, six parts indigo, six of potash, and one of madder. To dye it of a dark blue, it must previously receive a ground colour from archil.

Cotton and linen are dyed blue by a solution of one part indigo, one part of sulphate of iron, and two parts of quick lime.

Woad contains a colouring matter precisely similar to indigo, and by following the common process, indigo may be abstracted from it.

Yellow Dyes.

Weld is the substance much employed for this colour; fustic, and quercitron bark are also used; and indeed these three constitute our chief yellows. But Venice sumach, saw-wort, dyers's broom, French berries, and American golden rod, are occasionally used. Realgar, or sulphuret of arsenic, has latterly been used as a yellow dye.

Almost all yellow colouring matters must be dyed by the assistance of mordants. Alum is the most common; but oxyd of tin is used for very fine yellows. Tannin is also used after alum to fix the colour more copiously on cotton and linen. Tartar is also used; so also is muriate of soda, sulphate of lime, and even sulphate of iron.

The yellow dyed by fustic is more permanent, but not so beautiful as that given by weld or quercitron; the mordant for fustic is alum.

Weld and quercitron yield nearly the same colour, but as the bark yields colouring matter in much greater abundance, it is much more convenient and cheaper.

Wool may be dyed yellow thus: let it be boiled an hour or more in one-sixth its weight of alum, dissolved in a sufficient quantity of water. It is then to be plunged, without being rinsed, into a bath of warm water, containing in it as much quercitron bark as equals the weight of the alum employed. The cloth is to be turned through the boiling liquid till it has acquired the intended colour. Then a quantity of clean powdered chalk, equal to the hundredth part of the weight of the cloth, is to be stirred in, and the operation of dyeing continued for eight minutes longer.

For very bright orange, or golden yellow, the oxyd of tin must be used as a mordant. And for bright golden yellows some alum must be added along with the tin; for a delicate green shade, tartar must be added in different porportions, according to the shade wanted. By the addition of cochineal in small quantity, a fine orange may be obtained.

Silk is dyed different shades of yellow by either weld or quercitron bark. The proportion should be from one or two parts of bark, to twelve parts of silk, according to the shade. The bark tied up in a bag and put in the dyeing vessel whilst the water is cold. When it is heated to about 100°, the silk previously cleaned must be put in and continued in the liquor till it is of a proper colour. When the shade is wanted to be deep, a little chalk or pearl-ash should be added towards the end of the operation.

Cotton and linen should be prepared for yellow by dissolving one part of acetate of lead, and three parts of alum, in a sufficient quantity of water, heating the solution to 100°. The cloth must be soaked in the dye for two hours, and then hung out and dried; when the soaking and drying should be repeated; after which it is to be barely wetted with lime water, and then dried once more; the number of repetitions of the entire process must depend upon the brightness of the dye required. The dyeing bath is prepared thus: take twelve or eighteen parts of quercitron bark, according to the brightness required; let them be tied up in a bag, and placed in a sufficient quantity of cold water. Into this the cloth must be put, and turned round in it for one hour, while the heat is gradually raised to 120°. It must then be allowed to advance to a boiling heat, and the cloth be suffered to remain in a few minutes only afterwards.

Red Dyes.

The materials employed for this colour are lac or kermes, cochineal, archil, madder, carthamus, and Brazil wood.

Woollen stuffs of the coarse kind are dyed red with madder; but fine cloth is almost exclusively dyed with cochineal; although the colour which it receives from lac or kermes, if less bright, is more durable. Indeed two articles, lac lake, and lac dye, imported lately from the East Indies, dye very bright and permanent scarlets. Brazil wood is scarcely used except as an auxiliary; the colour which it imparts to wool is very fugitive.

Scarlet Dyes.

Scarlet may be died thus:—For each pound of cloth, put from fifteen to twenty quarts of very clear river water into a small copper. When the water is lukewarm, put in two ounces of cream of tartar, and one drachm and a half of powdered cochineal; when the liquor is ready to boil, add two ounces of a solution of tin made thus: take eight ounces of clear river water, and eight ounces of strong aquafortis, mix them together; then add half an ounce of sal ammoniac by degrees, taking care that one piece dissolves before you add a second; then put in two drachms of saltpetre; lastly, add by a little at a time, one ounce of pure grain tin. When the whole is dissolved it is fit for use. It should be kept in a cool place closely stopped.

The dyeing materials being thus mixed in the copper, the fire should be raised under it, and when the liquor boils, the cloth after being passed through warm water that it may receive the dye equally, is to be put in and well handled in the liquor for an hour and a half; it must then be taken out and slightly washed in clean water. Then prepare a fresh water, in which must be put one ounce and a half of pure starch; and when the liquor is a little more than lukewarm, six drachms and a half of cochineal, finely powdered, must be thrown in a little before the liquor boils. Two ounces of the solution of tin must then be added. Boil the liquor after this a few minutes, then cool it a little, put in the cloth to be finished, and boil it in the liqnor for an hour and a half. Take it out and wash it, and the process is completed.

Crimson Dyes.

For crimson the following process will answer: your copper being ready to boil, put in for each pound of cloth, two ounces and a half of alum, and one ounce and a half of white tartar; let the liquor boil a minute or two, then put in the cloth, and boil it for half an hour, when it is to be taken out and cooled in all places alike. Fill the copper again with fresh water, the former liquid being thrown away. And when about lukewarm, put in about an ounce of cochineal finely powdered; when it boils, cool it down by the addition of a pint of cold water; put in the cloth, and boil for an hour, or an hour and a half, as occasion may be. It must now be taken out, washed, and hung up to dry. If a lighter shade be required, use less of the ingredients. This colour is called grain crimson, to distinguish it from false crimson, obtained from Brazil wood.

Silks may be coloured red by madder by means of a mixed mordant of alum and the solution of tin; but the hues from madder are seldom sufficiently bright, and hence cochineal and carthamus are generally used.

To obtain shades of red, the above processes must be varied.

Cotton may be dyed scarlet by means of the solution of tin, cochineal, and quercitron bark, but the colour is too fading to be of any value.

Black Dyes.

The substances employed to give a black colour to cloth, are red oxyd of iron, and tannin. Log-wood is usually employed as an auxiliary, because it communicates lustre, and adds to the fulness of the black.

Cloth before it receives a black colour is usually dyed blue, which renders the colour much finer than it would otherwise be. If the cloth be coarse, blue may be too expensive, a brown colour is then previously given to it by walnut peels.

The proportions used by dyers for black, are: for every hundred pounds of woollen cloth, dyed first of a deep blue, about five pounds of sulphate of iron, five pounds of galls, and thirty of logwood. They begin by galling the cloth, and then pass it through the decoction of logwood, to which the sulphate of iron has been added.

The following is a process of dyeing black in the small way:—fill the copper to the brim with soft water, and when it begins to boil, add four ounces of logwood, three ounces of sumach, and three of alder bark; boil these ingredients half an hour, and put in the cloth; keep it under the water, and boil it for one hour, moving it about every ten minutes during that period. Then take the cloth out of the liquor, and hang it out to cool. Then dissolve six ounces of sulphate of iron in a bowl of the boiling liquor; mix two-thirds of this solution into the copper, and check the boiling by throwing in as much water as may have evaporated; the cloth is then to be put again into the liquor, stirred as before, and boiled for one hour; it is then to be taken out and cooled again in all parts alike; in the interim add the remaining of the dissolved copperas; check the boiling as before, put in the cloth again, and boil it for two hours; then take it out to cool again. While cooling put into the copper two or three ounces of logwood, two or three ounces of bark, an ounce of sulphate of iron, two ounces of pearl-ash, and about half an ounce of pounded archil. These must boil one hour; the boiling must be again checked as before, the cloth again put in and boiled for one hour, and handled as before. Thus the process will be completed. This process is tedious, but it will produce a very good black.

Silk is dyed black by a process not very different from that of cloth. It imbibes tannin freely, which can be given to it at pleasure, by allowing the silk to remain a shorter or longer time in the decoction.

It is by no means easy to give a full black to linen or cotton; and still less so a durable black; the colour generally yielding to the action of soap. The cloth previously dyed blue must be steeped for twenty-four hours in a decoction of galls; a hot liquor is then to be prepared, containing an acetate of iron, formed by saturating acetous acid with brown oxyd of iron; into this liquor plunge the cloth in small quantities at a time, and work it with the hand for a quarter of an hour; wring it out and air it; after which let it be worked again in the liquor, and again wrung out and aired. These alternate processes are to be repeated till the requisite colour is produced: a decoction of alder bark is usually mixed with the liquor containing the galls.

Brown or Fawn Colour, Buff, and Nankeen Dyes.

Birch, alder bark, and sumach, are occasionally used for these colours, but the more common 'is a decoction of walnut peels, or walnut root. The best of these in dyeing fawn colours, is the bark, or rind of the walnut.

A copper half full of water is placed over the fire; as soon as it grows warm, walnut bark is to be added in porportion to the cloths intended to be dyed, and the lightness or depth of the shades required. It is then to be boiled for about a quarter of an hour, when the cloths, previously moistened with warm water, are to be immersed in it, frequently turned, and well stirred till they have sufficiently imbibed the colour. They are of course to be aired, dried, and dressed in the usual manner.

Walnut root requires a different process: a copper is filled about three parts full of river water, into which the root is immersed, tied up in a bag. When the liquor is become very hot, the article to be dyed is to be plunged into it, repeatedly turned, and occasionally aired. The lighter stuffs are next to be dipped, till the colour is completely extracted. Care must be taken that the liquor does not boil.

The process of dyeing with alder bark, is nearly the same a that with walnut roots. It is chiefly used for worsteds, imparting shades darkened with sulphate of iron.

Sumach possesses nearly the same properties as the bark of the walnut-tree. Its colour is not so deep, somewhat inclining to green, but solid and permanent.

These different substances, however, are not unfrequently mingled together, and as they differ only in degrees of colour, it is easy by their admixture to obtain various shades.

Green Dyes.

Green is a mixture of blue and yellow; the cloth, however, is generally first dyed with blue, and afterwards with yellow, to produce the desired colour. When sulphate of indigo is employed, it is, however, usual to dye the cloth at once.

Violet, Purple, and Lilac Dyes

Are all mixed of blue and red. Wool, cotton, and linen are first dyed blue; the two last are then galled and soaked in a decoction of logwood: but a more permanent colour is given by means of oxyd of iron; they are dyed scarlet in the usual manner; or by cochineal being mixed with the sulphate of indigo, the process may be performed at once. Silk is first dyed crimson by means of cochineal, and then dipped in a sulphate of indigo.

Orange Dyes.

Orange is a mixture of yellow and red; if blue be added to a mixture of yellow and red, the result is an olive. Wool may be dyed orange by first dyeing in scarlet and then in yellow. If first dyed with madder, the produce will be a cinnamon-colour. Silk is dyed orange by means of carthamus; cinnamon-colour by logwood, Brazil-wood, and fustic, mixed together . Cotton and linen are rendered cinnamon-hued, by means of weld and madder; and olive-hued by being passed through a blue, yellow, and finally a madder dye.

Grey, Drab, and Dark Brown Dyes,

Are all mixtures of black with other colours. If cloth be previously combined with brown oxyd of iron, and afterwards dyed yellow with quercitron-bark, a drab of different shades will be produced according to the proportion of the mordant employed. And the drab may be deepened by mixing a little sumach with the bark.

The Finishing

The finishing, as it is called, of cloths, cottons, and other matters subjected to the process of dyeing, requires some attention. Woollens are generally finished by persons called hot-pressers; but those who wish to perform this operation themselves may do it by placing the cloth between press-papers, and using common sod-irons, not heated too hot, nor should they be suffered, when used, to remain too long in one place. For cottons, a calender or mangle will do; or simply ironing them. Siiks may be pinned out, as a clear-starcher pins out muslin; and ribbons are finished by drawing the heated sod-iron over them on the wrong side, they being previously placed between press-papers.

To stain Oak a Mahogany Colour.

Boil together Brazil wood and Roman allum, and before it is applied to the wood, a little pot-ash is to be added to it. A suitable varnish for wood, thus tinged, may be made by dissolving amber in oil of turpentine, mixed with a small portion of linseed oil.

To make a Liquid for staining Bone or Wood of different Colours.

Take strong white wine vinegar in a glass vessel, and put to it filings of copper, with some Roman vitriol, roach allum, and verdigris, and leave it thus infused for seven days; then boil it in some vessel, and by putting into it bone, ivory, or wood, it will penetrate, and give it a green colour. If any other colour is required, as red, blue, or yellow, put Brazil wood, indigo, French berries, or any other such colours, to infuse in the vinegar, with a little roach allum.

To stain Wood a fine Black.

Drop a little oil of vitrol into a small quantity of water, rub the same on your wood, then hold it to the fire until it becomes a fine black, and, when polished, it will be exceedingly beautiful.

To stain Box-wood Brown.

Hold the work to the fire, that it may receive a gentle warmth; then take aqua-fortis, and with a feather pass it over the work, till it changes to a fine brown. Then oil and polish it.

Ebony Black.

Steep the wood for two or three days in luke-warm water, in which a little allum has been dissolved; then put a handful of logwood, cut small, into a pint of water, and boil it down to less than half a pint. If a little indigo is added, the calour will be more leautiful. Spread a layer of this liquor quite hot on the wood with a pencil, which will give it a violet colour. When it is dry, spread on another layer; dry it again, and give it a third; then boil verdigris at discretion in its own vinegar, and spread a layer of it on the wood: when it is dry, rub it with a brush, and then with oiled chamois skin. This gives a fine black, and imitates perfectly the colour of ebony.

To dye Wood a Silver Grey.

Let not the veneers be too dry; when put into the copper, pour hot iron liquor (acetate of iron) over them, and add one pound of chip-logwood with two ounces of bruised nut-galls. Then boil up another pot of iron liquor to supply the copper, keeping the veneers covered and boiling two hours a day, until thoroughly penetrated.

Art of dyeing or staining Leather Gloves, to resemble the beautiful York Tan, Limerick Dye, &c.

These different pleasing hues of yellow, brown, or tan colour, are readily imparted to leather gloves by the following simple process: Steep saffron in boiling hot soft water for about twelve hours; then, having slightly sewed up the tops of the gloves, to prevent the dye from staining the insides, wet them over with a sponge or soft brush dipped into the liquid. The quantity of saffron, as well as of water, will of course depend on how much die may be wanted; and their relative proportions, on the depth of colour required. A common teacup will contain sufficient in quantity for a single pair of gloves.

To dye White Gloves Purple.

Boil four ounces of logwood and two ounces of roach alum, in three pints of soft water till half wasted. Let the liquor stand to cool after straining. Let the gloves be nicely mended, then with a brush rub them over, and when dry repeat it. Twice is sufficient, unless the colour is to be very dark; when dry, rub off the loose die with a coarse cloth; beat up the white of an egg, and with a spunge rub it over the leather. The dye will stain the hands, but wetting them with vinegar before they are washed, will take it off.

To make Nankeen Dye.

Boil equal parts of arnotto and common pot-ash in water, till the whole are dissolved. This will produce the pale reddish buff so much in use, and sold under the name of Nankeen Dye.

To dye Cotton a fine Buff Colour.

Let the twist or yarn be boiled in pure water, to cleanse it; then wring it, let it run through a dilute solution of iron in the vegetable acid, which printers call iron liquor; wring, and run it through lime water, to raise it; wring it again, and run it through a solution of starch and water; then wring it once more, and dry, wind, warp, and weave it for use.

Substitute for Galls in dyeing and also in making Ink.

The excresences on the roots of young oaks may be used with advantage as a substitute for galls. Oak dust has been used in this country instead of galls, to produce a black dye: so also has a strong decoction of logwood, copperas, and gum arabic.

To turn Red Hair Black.

Take a pint of the liquor of pickled herrings, half a pound of lamp-black, and two ounces of the rust of iron. Mix and boil them for twenty minutes, then strain and rub the liquid well into the roots of the hair.

To change the Colour of Hair.

This is done by spreading the hair to bleach on the grass like linen, after first washing it out in a lixivious water. This lye, with the force of the sun and air, brings the hair to a perfect whiteness. There is also a method of dyeing hair with bismuth, which renders such white hair as borders too much upon the yellow, of a bright silver colour.

Hair may be changed from a red, grey, or other disagreeable colour, to a brown or deep black, by a solution of silver. The liquors sold under the name of hair-waters, are, in fact, no more than solutions of silver in aquafortis, largely diluted with water, with the addition of ingredients, which contribute nothing to their efficacy. The solution should be fully saturated with the silver, that there may be no more acid in it than is necessary for holding the metal dissolved; and besides dilution with water, a little spirit of wine may be added for the further decomposition of the acid. For diluting the solution, distilled water, or pure rain-water must be used; the common spring-waters turning it milky, and precipitating a part of the dissolved silver. It is to be observed also, that if the liquor touches the skin, it has the same effect on it as on the matter to be stained, changing the part moistened with it to an indelible black. Hair may also be dyed of any colour in the same manner as wool.

To stain Horn to imitate Tortoise Shell.

The horn to be stained must first be pressed into proper plates or scales, or other flat form. The following mixture must then be used:—

Take of quicklime two parts, of litharge one, and temper them to the consistence of a soft paste with a soap ley. Put this paste over all the parts of the horn, except such as are proper to be left transparent, in order to the greater resemblance of the tortoise shell. The horn must then remain thus covered with the paste till it be thoroughly dry: when the paste being brushed off, the horn will be found partly opake and partly transparent in the manner of tortoise shell; and when put over a foil, will be scarcely distinguishable from it. It requires some degree of fancy and judgment to dispose of the paste in such a manner as to form a variety of transparent parts, of different magnitude and figure to look like nature. This may be done by mixing whitening with some of the paste to weaken its operation in particular places, by which spots of a reddish brown will be produced; that if properly interspersed, especially on the dark parts, will greatly increase as well the beuaty of the work, as its similitude to the real tortoise shell.

To dye Bristles or Feathers Green

Take of verdigris and verditer each 1 ounce, gum water 1 pint; mix them well, and dip the bristles or feathers, they having been first soaked in soft water, into the said mixture.

CHAP. V.

PERFUMES AND COSMETICS.

To make an excellent Smelling Bottle.

Take an equal quantity of sal-ammoniac and unslaked lime, pound them separate, then mix and put them in a bottle to smell to. Before you put in the above, drop two or three drops of the essence of bergamot into the bottle, then cork it close. A drop or two of ether, added to the same, will greatly improve it

To make Rose Water.

Gather roses on a dry day, when they are full blown; pick off the leaves, and to a peck put a quart of water, then put them into a cold still, make a slow fire under it; the slower you distil it the better it will be; then bottle it, and in two or three days you may cork it.

To make Milk of Roses.

To one pint of rose water, add one ounce of oil of almonds, and ten drops of the oil of tartar.

N. B.—Let the oil of tartar be poured in last.

Wash for the Skin.

Four ounces of pot-ash, four ounces of rose-water, two ounces of pure brandy, and two ounces of lemon juice; put all these into two quarts of water, and when you wash, put a table-spoonful or two of the mixture into the bason of water you intend washing in.

Lavender Water.

Put two pounds of lavender pips into two quarts of water, put them into a cold still, and make a slow fire under it; distil it off very slowly, and put it into a pot till you have distilled all your water: then clean your still well out, put your lavender water into it, and distil it off slowly again; put it into bottles, and cork it well.

Method of extracting Essences from Flowers.

Procure a quantity of the petals of any flowers which have an agreeable fragrance; card thin layers of cotton, which dip into the finest Florence or Lucca oil; sprinkle a small quantity of fine salt on the flowers, until an earthen vessel or a wide mouthed glass bottle is full. Tie the top close with a bladder, then lay the vessel in a south aspect to the heat of the sun, and in fifteen days, when uncovered, a fragrant oil may be squeezed from the whole mass, little inferior (if that flower is made use of) to the dear and highly valued Otto or Odour of Roses

To make the Best Honey Water.

Take of coriander seeds, a pound, cassia, four ounces, cloves, and gum benison, each 2 oz. oil of rhodium, essence of lemon, essence of bergamot, and oil of lavender, each one drachm, rectified spirit of wine, twenty pints, rose water, two quarts, nutmeg water, one quart, musk and ambergris, each twelve grains. Distil in a water bath to dryness.

To make Eau de Luce, and its Use.

Take of spirit of wine one ounce, spirit of salammoniacum four ounces, oil of amber one scruple, white Castile soap ten grains. Digest the soap and oil in the spirits of wine, add the ammoniacum, and shake them well together.

To make Hungary Water.

Take a quantity of the flowers of rosemary, put them into a glass retort, and pour in as much spirit of wine as the flowers can imbibe; dilute the retort well, and let the flowers macerate for six days, then distil it in a sand heat.

To make Otto, (or Odour) of Roses.

Pick the leaves of roses from all seeds and stalks, put them into a clean earthern vessel, glazed within, or a clean wooden vessel. Pour spring water on them, so as to cover them; set the vessel in the sun in the morning at rising, and leave it in the sun-shine till sun-set; then take them into the house; repeat this for six or seven days, and in three or four days there will be a fine yellow oily matter on the surface of the water; and in two or three days more, there will appear a scum upon the surface, which is the otto of roses. This may be taken up with cotton, and squeezed into a phial with the finger and thumb.

Remark.—It is suspected that there is some mistake in this receipt, and it has passed to the public through very many hands. It was published in the Transactions of the Royal Society of Edinburgh, on the authority of Dr. D. Morno, of London, who received it from Major Makenzie. who again got it from an officer of his corps, whose name is not mentioned,

The account given by Polier in the Transactions of the Bengal Society is very different. It is needless to detail it, for it is exactly the process of an European distiller: cohobation on fresh leaves, and exposure to slight cold, to congeal the essential oil, which is skimmed off or taken up by cotton, and squeezed into phials.

It is conjectured, that in the manufacture or production of otto, which is thought to be profitable in the East, and the reverse in Europe, the difference cannot be in the price of labour, or similar circumstances, which European skill would more than compensate; but in the fact, that there is a market for rose-water in the East, from the quantity used in washing hands, sprinkling rooms and garments, and similar purposes, to which the demand of the European apothecary and confectioner is comparatively insignificant. It is but a thin film of congealed essential oil which a great quantity of rose-water will afford; and after it is taken off, the water is still very good. In India it may be sold; in Europe it is waste; for to employ it in fresh distillations is clearly to waste a manufactured article.

To make Lip Salve.

Take an ounce of white wax and ox marrow, three ounces of white pomatum, and melt all in a bath heat; add a drachm of alkanet, and stir it till it acquire a reddish colorr.

To make the celebrated Pomade Divine.

According to Dr. Beddoes, this composition is as follows, viz. beef marrow, twelve ounces, steeped in water ten days, and afterwards in rose-water twenty-four hours; flowers of benjamin, pounded storax, and Florentine orris, and clove and nutmeg, a quarter of an ounce. The whole to be put in an earthen vessel, closely covered down, to keep in the fumes, and being suspended in water made to boil three hours; after which, the whole is to be strained and put into bottles.

To make Soft Pomatum.

Take what quantity of hog's lard you chose to make; cut it down in small pieces, and cover it with clear spring water, changing it every twenty-four hours for eight days; when it is quite white put it into a pan, and melt it over a clear fire; when it is all melted, strain it, and put to it some essence of lemon to perfume it: so keep it for use.

To make Hard Pomatum.

For hard pomatum, blanch the hog's lard in the same manner, as also some mutton suet, and boil them together with a little white wax; scent it with essence of lemon or lavender, then make round paper cases, and when cold turn down the other end, and keep it for use.

Genuine Windsor Soap.

To make this famous soap for washing the hands, shaving, &c. nothing more is necessary than to slice the best white soap as thin as possible, melt it in a stew-pan over a slow fire, scent it well with the oil of caraway, and then pour it into a frame or mould made for that purpose, or a small drawer, adapted in size and form to the quantity. When it has stood three or four days in a dry situation, cut it into square pieces, and it is ready for use. By this simple mode, substituting any more favourite scent for that of caraway, all persons may suit themselves with a good perfumed soap at a trifling expense. Shaving boxes may be at once filled with the melted soap, instead of a mould.

To prepare Aromatic Vinegar.

Take of common vinegar any quantity; mix a sufficient quantity of powdered chalk, or common whitening, with it, to destroy the acidity. Then let the white matter subside, and pour off the insipid, supernatant liquor; afterwards let the white powder be dried, either in the open air, or by a fire. When it is dry, pour upon it sulphuric acid (oil of vitriol), as long as white acid fumes continue to ascend. Stone vessels are the properest to be used on this occasion, as the acid will not act upon them. This product is the acetic acid, known in the shops by the name of aromatic vinegar. The simplicity and cheapness of this process points it out as a very useful and commodious one for purifying prisons, hospital-ships, and houses, where contagion is presumed or suspected, the white acid fumes diffusing themselves quickly around.

If any one is desirous of obtaining this acid in a liquid state, the apparatus of Nooth presents a convenience for the purpose. It must of course be collected in water. But the muriatic acid is cheaper, and much more expansible

To increase the Growth of Hair.

Hartshorn beat small, and mixed with oil, being rubbed upon the head of persons who have lost their hair, will cause it to grow again as at first.

To perfume Hair Powder.

Take one drachm of musk, four ounces of lavender blossoms, one and a half drachm of civet, and half a drachm of ambergris; pound the whole together, and pass it through a sieve. Preserve this mixture in well-stopped bottles, and add more or less thereof, as agreeable, in your hair powder.

To make Cold Cream Pomatum for the Complexion.

Take an ounce of oil of sweet almonds, and half a drachm each, of white wax and spermaceti, with a little balm. Melt these ingredients in a glazed pipkin over hot ashes, and pour the solution into a marble mortar; stir it with the pestil until it becomes smooth and cold, then add gradually an ounce of rose or orange-flower water; stir all the mixture till incorporated to resemble cream. This pomatum renders the skin at once supple and smooth. To prevent marks from the small pox, add a little powder of saffron. The galliput in which it is kept, should have a piece of bladder tied over it.

Orange Flower Paste for the Hands.

Blanch five or six pounds of bitter almonds, by boiling in water, and then beat them very fine in a marble mortar, with two pounds of orange flowers. If the paste be too oily, add to it some bean flour, finely sifted, but let no water enter the composition.

This paste is made abroad, but comes here very damaged, the sea-air destroying its properties

Pearl Water for the Face.

Put half a pound of best spanish oil soap, scraped very fine, into a gallon of boiling water. Stir it well for some time, and let it stand till cold. Add a quart of rectified spirit of wine, and half an ounce of oil of rosemary; Stir them again.

This compound liquid, when put up in proper phials, in Italy, is called tincture of pearls. It is an excellent cosmetic for removing freckles from the face, and for improving the complexion.

To make Coral Tooth Powder.

Take 4 ounces of Coral, reduced to an impalpable powder
8 ounces of very light Armenian bole,
1 ounce of Portugal snuff,
1 ounce of Havannah snuff,
1 ounce of good burnt tobacco ashes, and
1 ounce of gum myrrh, well pulverized.

Mix them together, and sift them twice.

A good Tooth Powder.

To make a good tooth-powder, leave out the coral; and, in its place, put in pieces of brown stone-ware, reduced to a very fine powder. This is the common way of making it.

To prevent the Tooth Ache.

Rub well the teeth and gums with a hard tooth-brush, using the flowers of sulphur as a tooth-powder, every night on going to bed; and if it is done after dinner it will be best. This is an excellent preservative to the teeth, and void of any unpleasant smell.

To make Marbled Soap Balls.

Take ten pounds of white oil-soap and ten pounds of Joppa soap. Cut them into small square pieces, which set to dry for three days: the oil-soap, particularly, must be thus dried.

Scrape, very finely, five pounds of oil-soap, which dry, for one day, in the open air, mix it will in the shaving-box, with five pounds of powder, add an ounce and a half of the best vermillion.

In mixing, place pieces of soap, and coloured powder, in layers in the box, making, in all, four alternate layers of each. When a layer of each has been placed in the box, sprinkle a pint of rose-water over the cut soap; for if it be much combined with the powder it will become lumpy and hard, and consequently spoil the wash-balls. The same quantity of rose-water is to be used for moistening each of the other soap layers. Next mix a pint of thin starch, which has been well boiled in half a pint of rain water, with half a pint of rose-water, and distribute it equally well mixed among the mass, by turning it over repeatedly, and then press it down close with the hands. If a piece be now cut off from the mass, the operator will perceive whether the marbling is sufficiently good; and if so, he may proceed immediately to form his wash-balls

Hair Powder Perfume.

Take half a pound of pulvil powder, made from apple-tree moss, half an ounce of grey ambergris, thirty grains of musk, and twenty grains of civet.

Grind the musk and civet with loaf sugar, to a very fine powder; melt the ambergris, with six drops of the oil of behn nuts, over a gentle fire, in a clean vessel, not brass or copper, add, as it melts, a few drops of the juice of green lemon, and about four drops each of the oil rhodium and lavender, When the ambergris is melted, put the above powder into it, stir and mix it well. Add, by degrees, the powder of apple-moss; and when the whole is combined, pulverize and sift it through a very fine hair sieve; what will not pass through, return into the mortar, again pound it with loaf sugar, until the whole is reduced to fine powder.

Bergamot Perfume.

Take sixteen pounds of hair powder, and forty drops of Roman oil of bergamot, and proceed in all respects as before, but do not leave the compound exposed to the air; for in this case the bergamot is so volatile, that it will quickly fly off.

To make Ambergris Hair Powder.

Take twelve pounds of fine starch-powder, add three pounds of the ambergris perfume, mix them well together, and run it twice through a fine hair sieve. Put it into a well-closed box, or glass, for use.

This is the first and best sort of ambergris powder; but for a second, or inferior sort, put only a pound and a half of the perfume, to the above quantity of starch-powder

To make Spanish Ladies' Rouge.

Take good new scarlet wood cuttings, and spirit of wine, or lemon-juice, boil them in a well-glazed earthen pot well stopped, till the liquid has charged itself with all the colour of the scarlet, strain the dye through a cloth, and all the colour therefrom, boil it afterwards in a little arabic water, till the colour becomes very deep. The proportion of materials is, to half a pound of scarlet cuttings, a quarter of a pint of spirit of wine, and a sufficient quantity of water to assist the soaking. Then, in the colour extracted put a piece of gum arabic, of the size of a filbert: next steep some cotton in the co our, and wet some sheets of paper with the dye, which repeat several times, as often as they are dry, and you will find them sufficiently charged with rouge for use.

CHAP. VI.

GARDENING, &c.

GARDENING is the art or science of laying out a plot of ground for the purpose of landscape, esculents, or flowers.

Landscape Gardening, is an art, which, during the last fifty years has arrived at great perfection in this country. The chief object at present pursued, and which ever ought to be pursued in the construction of picturesque garden scenery, is, to follow nature, and not to force her; to catch her own local views and intentions, and to perfect them; but by no means to banish and exchange them for views and intentions she may exhibit in other situations, even though these last may be more magnificent or imposing: in every respect we ought to endeavour to mix unity with utility, and utility with proportion, and harmony of parts to the whole.

In doing this, our chief attention is, of course, to be paid to the fore-ground, which is, in general, not merely of the highest importance, but the part, usually, most at the disposal of a proprietor. Wherever a person stands, the contiguous objects, immediately before him, form a fore-ground to the scene at which he is looking; and by the foreground, how much is the general prospect affected!

There are few who delight in landscape, who have not perceived that the general harmony and beauty of a scene result from a due proportion of its parts, and their consonance with nature; but the greater distances, and especially the back-ground, are seldom within the power of art. In order, therefore to harmonize the whole scene, a judicious adaptation of the objects through which the eye beholds it is essentially necessary. A path is a series of foregrounds and to adapt each part of this to the various combinations of the distant objects, which always result from change of place, or aspect, is the proper business of art:—to produce a selection of well-adapted greens, which shall contrast or mix their colouring into it;—such interruptions as may frequently give the charm of renewal to that of which we have been for a time deprived;—the absolutely unintervening foilage of shrubbery beneath the eye, and the shade of forest foilage above it; in which latter case, the best portions of the distant scene may be selected and beheld from between the stems of the trees, which should be so situated, as sometimes, by affording lateral limits, to reduce the view even to the strictest rules of composition; and thus, from the varieties of the foreground, the general scene is also perpetually varied.

Distant scenery, however, can never be viewed in parts, but only altogether; and hence nothing can be more absurd than attempts which we often meet with of counteracting the uniform operations of aërial perspective by spotting the remote hills with little circumscribed clumps of dark foliage, and to intersect, by regular fences, what is formed to please only by the singleness and majesty of the whole.

In a word, ornamental gardening should in its whole contour, exclude, as much as possible, every vestige of the appearance of art, building and other subjects, to which art is essential, of course, excepted. NATURE in this delightful study must be our chief directress, and to whom in every difficulty, we must constantly refer.

There are some features of the garden scene which are sometimes lost if intermixed with its general range, and hence, perhaps, may be seen to most advantage when contemplated alone.

The ORNAMENTAL OR FLOWER GARDEN, is of this kind, and often appears to the greatest advantage when standing apart from the general scene, and confined to some glade or other sheltered seclusion; although it is not difficult to imagine peculiarities of situation, where a departure from this rule might be adopted with great effect. The form and dispositions of its beds, although they ought to be positively irregular, should not be broken into too many round and disjointed patches, but only seem to interrupt the green sward walks; and, like the mazy herbage, that, in forest scenes, usually surrounds the underwood, wind carelessly among them, and running from side to side through every part of the scene, frequently meet the gravel path that leads round the whole. Here architectural forms, emblematic of the virtues and of the arts, the busts of the good and the wise, the votive tablets of friendship and of esteem, may often be gracefully and successfully introduced.

In the flower-garden, however, all art which is more apparent than is necessary, should be avoided. Convenience has tempted the gardener to plant many flowers in distinct compartments: thus tulips, ranunculuses, &c. are generally, even now, with all our improvements in taste, planted in groups, separately from other flowers; how much more beautiful would they appear intermixed promiscuously with the jonquil, narcissus, &c. &c., and peeping upon us, occasionally, from some unexpected winding? In truth, many of our modern flower-gardens, remind us rather of the stiff arrangements of the nursery-man, involving mere considerations of profit, than the tasteful variety every where so conspicuous in nature, and none more so than in her flowers. Such arrangements have no pretensions to nature or taste, and, in the ornamental flower-garden, should be carefully avoided.

The KITCHEN-GARDEN, can scarcely be considered as ornamental. The best situation for it is, a gentle inclination of the land towards the south; and if towards the north, or north-east of it, there be rising ground, a hill, or wood so much the better; but the south-east, south, and south west, should be as open as possible. The choice of soil is also of some importance: that which is loose and porous is to be preferred, to that which is clayey and close. It should generally be situated on one side of the house, and near the stable, that dung might be easily conveyed into it. The borders next the wall, should be eight or ten feet broad. Upon those borders exposed to the south, many sorts of early plants may be sown; while upon those exposed to the north, late crops may be raised; taking care, however, not to plant any sort of deep-rooting plants, especially beans and peas, too near the fruit-trees.

The ground should next be divided into sections; the best figure for these, is a square or an oblong; or they may be of that shape which will be most advantageous to the ground; and their size should be proportioned to the garden; if they be too small, the ground will be lost in walks, and the beds being enclosed by espaliers, the plants will not have sufficient light. The walks should also be determined on the same scale: these in a small garden, may be six feet broad, or even less, but in a larger one ten; and on each side of the walk, there should be a border three or four feet wide between it and the espalier, in which may be sown sallad, or other herbs which do not take deep root. In one of these divisions situated nearest to the stable, and best defended from the cold winds, should be the hot beds for early cucumbers, melons, &c.; and to these it is advisable to have a passage from the stables, for the conveyance of dung.

The most important points of general culture consist in well digging and manuring the soil, allowing a proper distance to each plant, and keeping it clear from weeds.

Those who garden on a large scale, should be provided with every convenience: a proper spot for a range of hot-beds, and another for hot-houses, and green-houses, will be necessary; a tool-house, and a room for the preservation of bulbs, seeds, &c., are also convenient appendages. Even in gardening on a small scale, a choice of implements is desirable. If water can be introduced, and kept clean with verdant banks around it, it will be advantageous; it should be supplied from a pond rather than from a spring

Proper Situation for a Green-house, or Room.

The aspect of a green-house may be at any point from east to west, following the course of the sun; or it may even be a little to the north of east or west, but only a little, and the less the better, otherwise the plants will not thrive in it, nor will the flowers acquire their natural colours.

To air Plants, and ventilate Rooms wherein they are contained.

Plants should have air, every day in the year, to make them grow well; but this matter, in sitting-rooms, will not of course be regulated for their sakes, especially in the colder seasons. Wherever placed, however, some attention should be paid to the airing and ventilating the rooms regularly, and occasionally the doors, in order to excite a a free circulation of air. This should be done to a certain extent every day according to the state of the weather, except in the time of severe frost, when it would not be advisable to admit external air. But at such times, if bad weather be of long continuance, the rooms may be ventilated by means of the doors, and by exciting a current of air in the passages, or other parts of the house.

In very severe frost, or in a continuation of damp weather, moderate fires should be made for the sake of the plants, if placed in rooms not occupied. The window shutters should also be closed at night.

On preserving Seeds of Plants in a State fit for Vegetation.

Seeds of plants may be preserved, for many months at least, by causing them to be packed, either in husks, pods, &c. in absorbent paper, with raisins or brown moist sugar; or a good way, practised by gardeners, is to wrap the seed in brown paper or cartridge paper, pasted down, and varnished over.

Easy method of discovering whether or not Seeds are sufficiently ripe.

Seeds, when not sufficiently ripe, will swim, but when arrived at full maturity, they will be found uniformly to fall to the bottom; a fact that is said to hold equally true of all seeds, from the cocoa nut to the orchis.

To plant and make Edgings.

Edgings of daisies, thrift, violet, gentianella, &c. should be planted in February; but those of box succeed better, if planted in April or August.

New edgings should be planted rather closely, that they may have an immediate effect; and, in repairing old ones, plant very close that the whole may appear uniform. Some plant these, in either case, with the dibble, but it is better to do this with the spade; cutting out by the line, a drill, or furrow, perpendicular on the side next the border, and to a depth suitable to the size of the roots to be laid; placing them against the perpendicular side, and spreading out their fibres sideways; exposing them to the air as short a time as possible.

How to cut Box Edgings.

Box edgings should be cut about the beginning of April, or in the end of July. They should however be cut once a year, and should be kept two inches in breadth at the bottom; being tapered up to a thin edge at the top; for nothing looks so ill as a large bushy edging, especially to a narrow walk. The use of edging is to separate the earth from the gravel, and the larger they are allowed to grow, the less effectual they become; getting the more open below, as they advance in height. Such also harbour snails, and other troublesome vermin.

A sure Method of curing Gravel Walks.

Three parts of pond water to one of brine, from the salting-tub in a family, poured with a watering-pot upon gravel-walks, will not only kill the moss upon them, but drive away the worms which make so many holes in them, and also prevent weeds springing up. This a gentleman has lately tried, who has several walks in a grove near his house. Since he moistened his walks with brine, which is now four years ago, they are incommoded neither by moss, weeds, or worms. Every autumn he causes them to be well watered with the brine and pond water, during a whole week, to prevent moss, and a week in spring, to guard against weeds and worms, besides giving them a sprinkling every now and then in the summer season, when they seem to want it.

To preserve delicate young Shoots of Flowers from Slugs and Earwigs.

Earwigs and slugs are fond of the points of the young shoots of carnations and pinks, and are very troublesome in places where they abound. To prevent them from getting to the fine stage plants, or supports of the stage, they are sometimes insulated in water, being set in cisterns or pans. If a pencil, dipped in oil, was drawn round the bottom of the pots once in two days, neither of these insects nor ants would attempt them. Few insects can endure oil. The smallest drop of it is instantly fatal to many kinds.

When to plant Annual and Perennial Flowers.

Many kinds of annuals and perennials, sown in March and the beginning of April, will be fit for transplanting about the end of May, and may either be planted in patches about borders, or in beds, as fancy shall direct. Of these, the kinds improved by transplanting, are, amaranthuses, China asters, columbines, French and African marigolds, foxgloves, holly hocks, India pinks, love lies a bleeding, mallows, mignionette, prince's feather, scabious, stocks, sun-flowers, sweet-williams, wall-flowers, and others. They should be planted out in a showery time, if possible, or otherwise be frequently watered till they have struck root.

To remove Herbs and Flowers in the Summer.

If you have occasion to transplant in the summer season, let it be in the evening after the heat is past, plant and water the same immediately, and there will be no danger from the heat next day; but be careful, in digging up the earth, you do not break any of the young shoots, as the sap will exude out of the same to the great danger of the plants.

To increase the Growth in Trees.

It may be depended upon as a fact, that by occasionally washing the stems of trees, their growth will be greatly increased: for several recent experiments have proved that all the ingredients of vegetation united, which are received from the roots, stem, branches, and leaves, of a mossy and dirty tree, do not produce half the increase either in wood or fruit, that another gains whose stem is clean. It is clearly obvious that proper nourishment cannot be received from rain, for the dirty stem will retain the moisture longer than when clean, and the moss and dirt will absorb the finest parts of the dew, and likewise act as a screen, by depriving the tree of that share of sun and air which it requires.

A common scrubbing-brush and clean water is all that is necessary, only care must be observed not to injure the bark.

To preserve Flower Seeds.

Those who are curious about saving flower seeds, must attend to them in the month of August. Many kinds will begin to ripen apace, and should be carefully sticked and supported, to prevent them from being shaken by high winds, and so partly lost. Others should be defended from much wet; such as asters, marigolds, and generally those of the class Syngenesia; as from the construction of their flowers they are apt to rot, and the seeds to mould, in bad seasons. Whenever they are thought ripe, or indeed any others, in wet weather, they should be removed to an airy shed or loft, gradually dried, and rubbed or beat out at conveniency

To cure the Canker in Trees.

Cut them off to the quick, and apply a piece of sound bark from any other tree, and bind it on with a flannel roller. Cut off the canker, and a new shoot will grow strong, but in a year or two you will find it cankered.

Composition for healing Wounds in Trees.

Take of dry pounded chalk three measures; and of common vegetable tar, one measure; mix them thoroughly, and boil them with a low heat, till the composition becomes of the consistency of bees-wax; it may be preserved for use, in this state for any length of time. If chalk cannot conveniently be got, dry brick-dust may be substituted.

Application—After the broken or decayed limb has been cut off, the whole of the saw-cut must be very carefully pared away, and the rough edges of the bark, in particular, must be made quite smooth: the doing of this properly is of great consequence; then lay on the above composition, hot, about the thickness of half-a-crown, over the wounded place, and over the edges of the surrounding bark, it should be spread with a hot trowel.

Bad Effects of Iron Nails, &c. on Fruit Trees.

It often happens that some of the limbs of fruit trees, trained against a wall, are blighted and die, while others remain in a healthy and flourishing state. This has been hitherto erroneously attributed to the effects of lightening; but from closer observation, and from several experiments, it has been found to arise from the corroding effects of the rust of nails and cramps with which trees in this situation are fastened. To avoid this inconvenience, therefore, it require only to be careful in preventing the iron from coming in contact with the bark of the trees.

To destroy Moss on Trees.

Remove it with a hard scrubbing-brush in February and March, and wash the trees with cow-dung, urine, and soap-suds.

To obtain a good Crop of Onions.

In order to obtain a good crop of onions, it is proper to sow at different seasons, viz. in light soils, in August, January, or early in February; and in heavy wet soils, in March, or early in April. Onions, however, should not be sown in January, unless the ground be in a dry state, which is not often the case at so early a period of the season; but if so, advantage should be taken of it.

To preserve Strawberry Plants from the Heat of the Sun, &c.

Sir Joseph Banks, from a variety of experiments, and the experience of many years, recommends a general revival of the now almost obsolete practice of laying straw under strawberry plants, when the fruit begins to swell; by which means the roots are shaded from the sun, the waste of moisture by evaporation prevented, the leaning fruit kept from damage by resting on the ground, particularly in wet weather, and much labour in watering saved. Twenty trusses of long straw are sufficient for 1800 feet of plants.

To prevent the Growth of Weeds round your Fruit Trees.

To diminish the growth of weeds round fruit trees spread on the ground round the fresh transplanted trees, as far as the roots extend, the refuse stalks of flax after the fibrous parts have been separated. This gives them very surprising vigour, as no weeds will grow under flax refuse, and the earth remains fresh and loose. Old trees treated in the same manner, when drooping, will recover, and push out vegerian shoots. In place of flax stalks, the leaves which fall from trees in autumn may be substituted, but they must be covered with waste twigs, or any thing else that can prevent the wind from blowing them away.

To prevent the Propagation of Insects on Apple Trees.

Let a hard shoe-brush be applied to every infected limb, as if it were to coach harness, to get off the dirt, after which, with the tin box and brush, give the limbs a dressing, leave them exposed to the sun, to enhale the efficacy of the application. This should be repeated occasionally during the summer, chusing always a dry time and warm clear sunshine.

To guard Cabbages from the Depredations of Caterpillars

Sow with hemp all the borders of the ground wherein the cabbage is planted; and although the neighbourhood be infested with caterpillars, the space inclosed by the hemp will be perfectly free, and not one of these vermin will approach it.

To stop the Ravages of Caterpillars from Shrubs, Plants, and Vegetables.

Take a chafing-dish, with lighted charcoal, and place it under the branches of the tree, or bush, whereon are the caterpillars: then throw a little brimstone on the coals. The vapour of the sulphur, which is mortal to these insects, and the suffocating fixed air arising from the charcoal, will not only destroy all that are on the tree, but will effectually prevent the shrubs from being, at that season infested with them. A pound of sulphur will clear as many trees as grow on several acres.

Another method of driving these insects off fruit-trees is, to boil together a quantity of rue, wormwood, and common tobacco (of each equal parts), in common water. The liquor should be very strong. Sprinkle this on the leaves and young branches every morning and evening during the time the fruit is ripening.

To gather Vegetables.

This is, in part, performed with a knife, and part by fracture or torsion with the hand. In all cases of using the knife, the general principle of cutting is to be attended to, leaving also a sound section on the living plant. Gathering with the hand ought to be done as little as possible.

To gather Orchard Fruits.

In respect to the time of gathering, the criterion of ripeness, adopted by Forsyth, is their beginning to fall from the tree. Observe attentively when the apples and pears are ripe; and do not pick them always at the same regular time of the year, as is the practice with many. A dry season will forward the ripening of fruit, and a wet one retard it; so that there will sometimes be a month's difference in the proper time of gathering. If this is attended to, the fruit will keep well, and be plump; and not shrivelled, as is the case with all fruit that is gathered before it is ripe.

The art of gathering is to give them a lift, so as to press away the stalk, and if ripe, they readily part from the tree. Those that will not come off easy should hang a little longer; for when they come hardly off they will not be so fit to store, and the violence done at the foot-stalk, may injure the bud there formed for the next year's fruit.

Let the pears be quite ripe when pulled, and in handling avoid pinching the fruit, or in any way bruising it, as those which are hurt, not only decay themselves, but presently spread infection to those near them: when suspected to be bruised, let them be carefully kept from others, and used first: as gathered, lay them gently in shallow baskets.

To preserve Ripe Fruit.

Such ripe fruit as may be preserved, is generally laid up in lofts and bins, or shelves, when in large quantities, and of baking qualities; but the better sort of apples and pears are now preserved in a system of drawers, sometimes spread out in them, at other times wrapped up in papers; or placed in pots, cylindrical earthen vessels, among sand, moss, paper, chaff, hay, saw-dust, &c. or sealed up in air tight jars or casks, and placed in the fruit cellar.

To preserve Pears.

Having prepared a number of earthenware jars, an d a quantity of dry moss, place a layer of moss and pears alternately till the jar is filled, then insert a plug, and seal around with melted rosin. These jars are sunk in dry sand to the depth of a foot; a deep cellar is preferable for keeping them to any fruit room.

To preserve various Sorts of Fruit.

By covering some sorts of cherry, plumb, gooseberry, and currant trees, either on walls or on bushes with mats, the fruit of the red and white currant, and of the thicker skinned gooseberry trees, may be preserved till Christmas and later. Grapes, in the open air, may be preserved in the same manner; and peaches and nectrines may be kept a month hanging on the trees, after they are ripe.

Arkwright, by late forcing, retains plump grapes on his trees till the beginning of May, and even later, till the maturity of his early crops. In this way, grapes may be gathered every day in the year.

To preserve Walnuts.

Walnuts for keeping should be suffered to drop off themselves, and afterwards laid in an open airy place till thoroughly dried; then pack them in jars, boxes, or casks, with fine clean sand, that has been well dried in the sun, in an oven, or before the fire, in layers of sand and walnuts alternately; set them in a dry place, but not where it is too hot. In this manner, they have been kept good till the latter end of April. Before sending them to table, wipe the sand clean off; and if they have become shrivelled, steep them in milk and water for six or eight hours before they are used; this will make them plump and fine, and cause them to peel easily.

To preserve Chesnuts and Filberts.

The chesnut is to be treated like the walnut after the husk is removed, which, in the chesnut, opens of itself. Chesnuts and walnuts may be preserved during the whole winter, by covering them with earth, as cottagers do potatoes.

To preserve Medlars and Quinces.

The medlar is not good till rotten ripe. It is generally gathered in the beginning of November, and placed between two layers of straw to forward its maturation. Others put medlars in a box on a three-inch layer of fresh bran, moistened well with soft warm water; then strew a layer of straw between them, and cover with fruit two inches thick; which moisten also, but not so wet as before. In a week or ten days after this operation, they will be fit for use.

To preserve Grapes.

Where there are several bunches in one branch, it may be cut off, leaving about six inches in length, or more, of the wood, according to the distance between the bunches, and a little on the outside of the fruit at each end; seal both ends with common bottle wax, then hang them across a line in a dry room, taking care to cut out with a pair of scissars, any of the berries that begin to decay or become mouldy, which, if left, would taint the others. In this way grapes may be kept till February; but if cut before the bunches are too ripe they may be kept much longer.

Grapes may be kept by packing them in jars (every bunch being first wrapped up in soft paper), and covering every layer wity bran, well dried, laying a little of it at the bottom of the jar; then a layer of grapes, and so on, a layer of bran and of grapes alternately, till the jar is filled: then shake it gently, and fill it to the top with bran, laying some paper over it, and covering the top with a bladder, tied firmly to exclude the air; then put on the top or cover of the jar, observing that it fits close. These jars should be kept in a room where a fire can be kept in wet damp weather.

To improve all Sorts of Seeds.

Charles Miller, son of the celebrated botanist, published a recipe for fertilizing seed, and tried it on wheat, by mixing lime, nitre, and pigeons' dung in water, and therein steeping the seed. The produce of some of these grains is stated at 60, 70, and 80 stems, many of the ears five inches long, had 60 corns each, and none less than 40.

To preserve Seeds for a long Time.

When seeds are to be preserved longer than the usual period, or when they are to be sent to a great distance, sugar, cotton, salt, sawdust, paper, &c. have been adopted with different degrees of success. Chinese seeds, dried by means of sulphuric acid, in Leslie's manner, may afterwards be preserved for any necessary length of time, by keeping them in an airy situation in common brown paper, and occasionally exposing them to the air in a fine day, especially after damp weather. This method will succeed with all the larger mucilaginous seeds. Very small seeds, berries, and oily seeds, may probably require to be kept in sugar, or among currants or raisins.

Time for gathering Fruit.

This should take place in the middle of a dry day Plums readily part from the twigs when ripe; they should not be much handled as the bloom is apt to be rubbed off.

Apricots may be accounted ready, when the side next the sun, feels a little soft with a gentle pressure with the finger. They adhere firmly to the tree, and would over ripen on it and become mealy. Peaches and nectarines, if moved upwards, and allowed to descend with a slight jerk, will separate, if ready; and they may be received into a tin funnel lined with velvet, so as to avoid touching with the fingers or bruising.

A certain rule for judging of the ripeness of figs is, to notice when the small end of the fruit becomes of the same colour as the large one.

The most transparent grapes are the most ripe. All the berries in a bunch never ripen equally; it is therefore proper to cut away unripe or decayed berries before presenting the bunches at the table.

Autumn and winter pears are gathered when dry, as they successively ripen.

Immature fruit never keeps so well as that which nearly approaches maturity. Winter apples should be left on the trees till there be danger of frost; they are then gathered on a dry day.

To store Fruit.

Those to be used first, lay by singly on shelves, or on the floor, in a dry southern room, on clean dry moss, or sweet dry straw, so as not to touch one another. Some, or all the rest having first laid a fortnight singly,and then nicely culled, are to be laid on shelves, or on a dry floor. But the most superior way is, to pack in large earthen, or China, or stone jars, with very dry long moss at the bottom, sides, and also between them, if it might be. Press a good coat of moss on the top, and then stop the mouth close with a cork, or otherwise, which should be rosined round about with a 20th part of bees' wax in it. As the object is effectually to keep out air, (the cause of putrefaction,) the jars, if earthen, may be set on dry sand, which put also between, round and over them, to a foot thick on the top. In all close storing, observe there should be no doubt of the soundness of the fruit. Guard, in time, from frost, those that lie open. Jars of fruit must be soon used after unsealing.

To keep Apples and Pears for Market.

Those who keep their fruit in storehouses, for the supply of the London and other markets, as well as those who have not proper fruit-rooms, may keep their apples and pears in baskets or hampers; putting some soft paper in the bottoms and round the edges of the baskets, &c. to keep the fruit from being bruised; then put in a layer of fruit, and over that another layer of paper; and so on, a layer of fruit and of paper alternately, till the basket or hamper be full: cover the top with paper three or four times double, to exclude the air and frost as much as possible. Every different sort of fruit should be packed separately; and it will be proper to fix a label to each basket or hamper, with the name of the fruit that it contains, and the time of its being fit for use.

CHAP. VII.

INK

To make one Gallon of Black Writing Ink.

Into a glazed stone jar or pitcher put one pound of Aleppo galls, slightly bruised; then add one gallon of rain water, nearly of a boiling heat; let these stand together for fourteen days upon the kitchen hearth, or moderately warm; after that time add four ounces of green copperas or sulphate of iron, four ounces of logwood chips or shavings, one ounce of alum, one ounce of sugar-candy, and four ounces of gum-arabic or senegal. Let the whole remain ten or twelve days longer in a moderate heat, the mouth of the vessel slightly covered with paper. Stir the ingredients well with a stick twice a day during the whole time; then strain off the ink through linen or flannel, bottle it, pour a little brandy on the top of the ink in each bottle, then cork them well, and keep them for use in a place of temperate heat.

This ink may be depended upon as excellent, durable, and preserving the writing all a deep black.

N. B.—The best galls for the purpose are those which are dark coloured, heavy, and free from grub holes.

To make Common Black Ink.

A good and durable black ink may be made by the following directions:—To two pints of water add three ounces of the dark-coloured Aleppo galls in gross powder, and of rasped logwood, green vitriol, and gum arabic, each one ounce. This mixture is to be put into a convenient vessel, and well shaken four or five times a day, for ten or twelve days, at the end of which time it will be fit for use; though it will improve by remaining longer on the ingredients. Vinegar instead of water makes a deeper-coloured ink; but its action on pens soon spoils them.

Permenant Writing Ink.

As common writing ink is susceptible of being effaced by oxygenated muriatic acid, and as the knowledge of this fact may be abused to very fraudulent purposes, the following composition for inks, absolutely indestructible, is recommended to the notice of the curious.

Boil one ounce of Brazil wood and three ounces of nut-galls, in 46 ounces of water, till they shall be reduced to thirty ounces in all. Pour this decoction, while it is yet hot, upon half an ounce of sulphate of iron, or martial vitriol, a quarter of an ounce of gum-arabic, and a quarter of an ounce of white sugar. After these substances are dissolved, add to the solution one ounce and a quarter of indigo, finely pulverized, with three quarters of an ounce of lamp-black, very pure, of smoke black, previously diluted in one ounce of the best brandy.

The following receipt is still more simple: Boil one ounce of Brazil wood with twelve ounces of water, and half an ounce of alum; continue the ebullition till the liquid mixture shall have been reduced to eight ounces; then add an ounce of the black oxide of manganese, which has been reduced by decantation to extreme fineness, and, in mixture with it, half an ounce of gum-arabic.

Remark.—The chief advantage of this ink (said to be proposed by Schever) is, that it is in part a printer's ink; the black oxide of manganese, and the lamp-black, not being affected by acids, and the indigo in powder but slightly, so that they must be effaced by rubbing or washing off, and not by solution. The ink, however, is not absolutely indestructible, nor equal to the common indelible ink, which may be used on paper as well as silk, linen, and cotton cloths.

To make Indian Ink.

Put six lighted wicks into a dish of oil; hang an iron or tin concave cover over it so as to receive all the smoke; when there is a sufficient quantity of soot settled to the cover, then take it off gently with a feather upon a sheet of paper, and mix it up with gum tragacanth to a proper consistence.

N. B. The clearest oil makes the finest soot, consequently the best ink.

Permanent Red Ink for marking Linen.

This useful preparation, which was contrived by the late learned and ingenious Dr. Smellie, of Edinburgh, who was originally a printer in that city, may be used with types, a hair pencil, or even with a pen. Take half an ounce of vermilion, and a dram of salt of steel; let them be finely levigated with linseed oil, to the thickness or limpidity required for the occasion. This has not only a very good appearance; but will, it is said, be found perfectly to resist the effects of acids, as well as of all akaline leys. It may be make of other colours, by substituting the proper articles instead of vermilion.

To make Sympathetic, or Invisible Ink.

Let quick-lime be quenched in common water, and while quenching let some red orpiment be added to it (this, however, ought to be done by placing warm ashes under it for a whole day), and let the liquor be filtered and preserved in a glass bottle well corked. Then boil litharge of gold, well pounded, for half an hour, with vinegar, in a brass vessel, and filter the whole through paper, and preserve it also in a bottle closely corked. If you write any thing with this last water, with a clean pen, the writing will be invisible when dry; but if it be washed over with the first water, it will become instantly black. And it is wonderful, that though sheets of paper without number, and even a board, be placed between the invisible writing and the second liquid, it will have the same effect, and turn the writing black, penetrating the wood and the paper, without leaving any traces of its action, which is certainly surprising.

Red Ink.

Take a quarter of a pound of the best Brazil wood, (get it in the log if possible, and rasp or shave it yourself, one ounce of cream of tartar, and one ounce of alum; boil these ingredients in a quart of clear water till half is consumed, then add to the ink, when filtered hot, one ounce of gum-arabic, and one ounce of fine sugar.

A little salt added will prevent it from becoming mouldy.

To make New Writing look Old.

Take a drachm of saffron, and infuse it into half a pint of ink, and warm it over a gentle fire, and it will cause whatever is written with it to turn yellow, and appear as of many years standing.

To prevent Mould in Inks.

In order to secure the above and other inks from growing mouldy, a quarter of a pint or more of spirit of wine, may be added; but to prevent its containing any acid which may injure the ink, a little tartar or pearl-ashes should be added previously, and the spirit poured off from it, which will render it innocent with regard to the colour of the ink.

To prevent Ink from Freezing in Winter.

Instead of water use brandy, with the same ingredients which enter into the composition of any ink, and it will never freeze.

To take out Spots of Ink.

As soon as the accident happens, wet the place with juice of sorrel or lemon, or with vinegar, and the best hard white soap.

To restore Decayed Writings.

Cover the letters with phlogisticated or prussic alkali, with the addition of a diluted mineral acid; upon the application of which the letters change very speedily to a deep blue colour of great beauty and intensity. To prevent the spreading of the colour, which, by blotting the parchment, detracts greatly from the legibility, the alkali should be put on first, and the diluted acid added upon it. The method found best to answer has been, to spread the alkali thin with a feather or a bit of stick cut with a blunt point. Though the alkali should occasion no sensible change of colour, yet the moment the acid comes upon it, every trace of a letter turns at once to a fine blue, which soon acquires its full intensity, and is beyond comparison stronger than the colour of the original trace. If, then, the corner of a bit of blotting paper be carefully and dexterously applied near the letters, so as to imbibe the superfluous liquor, the straining of the parchment may be in a great measure avoided; for it is this superfluous liquor which absorbing part of the colouring matter from the letters, becomes a dye to whatever it touches. Care must be taken not to bring the blotting paper in contact with the letters, because the colouring matter is soft whilst wet, and may easily be rubbed of. The acid chiefly employed is the marine; but both the vitriolic and the nitrous succeed very well. They should be so far diluted as not to be in danger of corroding the parchment, after which the degree of strength does not seem to be a matter of much nicety.

Best Ink Powder.

Infuse a pound of galls powdered, and three ounces of pomegranate peels, in a gallon of soft water for a week, in a gentle heat, and then strain off the fluid through a coarse linen cloth. Then add to it eight ounces of vitriol dissolved in a quart of water, and let them remain for a day or two, preparing in the meantime a decoction of logwood, by boiling a pound of the chips in a gallon of water, till one third is wasted, and then straining the remaining fluid while it is hot. Mix the decoction and the solution of galls and vitriol together, and add five ounces of gum-arabic, and then evaporate the mixture over a common fire to about two quarts, when the remainder must be put into a vessel proper for that purpose, and reduced to dryness, by hanging the vessel in boiling water. The mass left after the fluid is exhaled, must be well powdered; and when wanted for use, may be converted into ink by the addition of water.

To take impressions from recent Manuscripts.

This is done by means of fusible metals. In order to show the application of it, paste a piece of paper on the bottom of a china saucer, and allow it to dry; then write upon it with common writing ink, and sprinkle some finely powdered gum-arabic over the writing, which produces a slight relief, when it is well dried, and the adhering powder brushed off, the fusible metal is poured into the saucer, and is cooled rapidly, to prevent chrystallization. The metal then takes a cast of writing, and when it is immersed in slightly warm water, to remove adhering, gum impressions may be taken from it as from a copper plate.

CHAP. VIII.

PAINTS, PAINTING, AND COLOUR-MAKING.

To prepare drying Oil and Paint.

Put a Scots pint (two English quarts) of linseed oil in a pan, with a pint of burnt umber; boil it gently two hours; prepare this without doors, for fear of fire in the house; when it settles it will be fit for use; pour the clear off, and use it with the white lead; the dregs will do for the red lead.

For the second Priming.

Take a hundred weight of white lead, with an equal quantity of Spanish white in bulk but not in weight; grind them pretty stiff with linseed oil; when you use it, put in some of the above mentioned drying oil, with a little oil of turpentine; but do not lay on this till the first coat is very dry

Lead-coloured Paint for preserving Iron.

Take a small quantity of common litharge, and place it over the fire in a shovel; afterwards, when sufficiently warm, scatter over it a little flower of brimstone, which will instantly convert it into a blackish colour, and which, when ground in oil, makes a good dark lead colour. It dries quick, gets remarkably hard, and resists the weather better than any other lead colour

To make Putty and finish Painting.

Mix a quantity of whitening, very stiff, with linseed oil and drying oil, equal quantities, when it cannot be wrought by the hand, more whitening must be added, and beat up with a mallet, till it is stiffer than dough; when the second priming is dry, stop all holes and cracks with the putty; when hard and dry lay on the last paint, viz. grind the best white lead very stiff with linseed oil; when used put some of the drying oil to it, and oil of turpentine: this will preserve out-works a long time.

N. B. For rooms and places within doors, your own fancy must direct you in the colours, only proceed as above.

Cheap Black Paint.

Take of the bluish marly stone, found in copper, tin, and lead mines (principally in the copper mines), and of iron stone, and of fine blue marle of slate, and of ochre, equal quantities, and reduce them by grinding or pounding to a very fine powder. To any given quantity of the above mentioned materials, when put together, add one eight of their weight of lamp-black, so that there will be seven-eights of the earthy or mineral substances, and one eight of the lamp-black. This produces a superior black paint for wood, iron, canvas, or any other thing for which paint is used; but for the purpose of using such paint, it must be ground (in the usual manner of grinding colours) with oil as commonly done by colourmen and painters (their boiled oil is to be preferred); and the same when mixed and made up as other paint generally is, may be used with the brush as in common practice. Ivory black may be substituted, but for general purposes lamp-black is preferable.

To make Brown Paint.

Take green muriate of copper, diluted with about ten parts of distilled or rain water; then pour in prussiate of lime until the whole is precipitated; the prussiate of copper is then to be well washed with cold water, on the filter, and to be dried without heat.

Composition for preserving Weather Boarding, Pailing, &c.

Lime, it is well known, when well burnt, will soon become slaked by exposure in the open air, or even if confined in a situation not remarkably dry, so as to crumble of itself into powder. This is called air-slaked lime, in contradistinction to that which is slaked in the usual way, by being mixed with water. For the purpose of making the present useful composition to preserve all sorts of wood-work exposed to the vicissitudes of the weather, take three parts of this air-slaked lime, two of wood-ashes, and one of fine sand, pass them through a fine sieve, and add as much linseed oil to the composition as will bring it to a proper consistence for working with a painter's brush. As particular care must be taken to mix it perfectly, it should be ground on a stone slab with a proper muller, in the same manner as painters grind their white lead, &c.; but, where these conveniences are not at hand, the ingredients may be mixed in a large pan, and well beat up with a wooden spatula. Two coats of this composition being necessary, the first may be rather thin; but the second should be as thick as it can conveniently be worked. This most excellent composition for preserving wood when exposed to the injuries of the weather, is highly preferable to the customary method of laying on tar and ochre. It would be much improved by melting one-half of coal tar with the linseed oil.

Naples Yellow.

The beautiful colour commonly sold under the name of Naples yellow, is well known. Those who buy it are often imposed upon by being told that it is a substance produced from Mount Vesuvius, but it is well known to be a composition by art. The process is composed of the following substances, viz. one pound of antimony, one pound and a half of lead, half an ounce of alum, and the same quantity of common salt. The antimony and lead should be calcined together, afterwards the other ingredients added, and then the whole mixture undergoes a second calcination.

To make Green Colour.

Every green colour, simple or compound, when mixed up with a white ground, becomes soft, and gives a sea-green, of greater or less strength, and more or less delicate, in the ratio of the respective quantities of the principal colours. Thus, green oxides of copper, such as mountain green, verdigris, dry crystalized acetate of copper, green composed with blue verditer, and the dutch pink of Troyes, or any other yellow, will form, with a base of a white colour, a sea green, the intensity of which may be easily changed or modified. The white ground for painting in distemper is generally composed of Bougival white (white marl), or white of Troyes (chalk), or Spanish white, (pure clay); but for varnish or oil painting, it is sought for in a metallic oxide. In this case, ceruse or pure white oxide of lead is employed.

To clean Oil Paintings.

If smoked, or very dirty, take stale urine, in which a little common salt is dissolved; rub them over with a woollen cloth dipped in that, till you think them quite clean, then with a sponge wash them over with fair water; then dry them, and rub them over with a clean cloth.

To make Blue Colours.

Blue belongs to the order of vegetable substances, like indigo; or to that of metallic substances, like Prussian blue; or to that of stony mineral substances, as ultra marine; or to that of vitreous substances coloured by a metallic oxide, as Saxon blue. Ultra marine is more particularly reserved for pictures. The same may, in same degree, be said of Saxon blue.

When prussiate of iron or indigo is employed without mixture, the colour produced is too dark. It has no splendour, and very often the light makes it appear black: it is, therefore, usual to soften it with white.

To make cheap beautiful Green Paint.

The cost of this paint is less than one-fourth of oil colour, and the beauty far superior. Take four pounds of Roman vitrol, and pour on it a tea-kettle full of boiling water; when dissolved, add two pounds of pearl-ash, and stir the mixture well with a stick until the effervescence cease; then add a quarter of a pound of pulverized arsenic, and stir the whole together. Lay it on with a paint brush, and if the wall has not been painted before, two, or even three coats will be requisite. To paint a common sized room with this colour, will not cost more than five or six dollars. If a pea-green is required put in less, and if an apple green more, of the yellow arsenic.

To make Chesnut Colour.

This colour is composed of red, yellow, and black. The English red, or red ochre of Auvergne, ochre de rue, and a little black, form a dark chesnut colour. It is proper for painting of every kind. If English red, which is drier than that of Auvergne, be employed, it will be proper, when the colour is intended for varnish, to grind it with drying nut oil. The ochre of Auvergne may be ground with the mastic gallipot, and mixed up with the gallipot varnish.

The most experienced artists grind dark colours with linseed oil, when the situation will admit of its being used, because it is more drying. For articles without doors, nut oil is preferable. The colours of oak-wood, walnut-tree, chesnut, olive, and yellow, require the addition of a little litharge ground on porphyry; it hastens the dessication of the colour, and gives it body.

But if it is intended to cover these colours with varnish, as is generally done in wainscoting, they must be mixed up with essence, to which a little oil has been added. The colour is then much better disposed to receive the varnish, under which it exhibits all the splendour it can derive from the reflection of the light.

To make a Drier for Painting.

Vitreous oxide of lead, (litharge,) is of no other use in painting than to free oils from their greasy particles, for the purpose of communicating to them a drying quality. Red litharge, however, ought to be preferred to the greenish yellow: it is not so hard, and answers better for the purpose to which it is destined.

When painters wish to obtain a common colour of the ochery kind, and have no boiled oil by them, they may paint with linseed oil, not freed from its greasy particles, by mixing with the colour about two or three parts of litharge, ground on a piece of porphyry with water, dried and reduced to a fine powder, for sixteen parts of oil. The colour has a great deal of body, and dries as speedily as if mixed with drying oil.

To take off, instantly, a Copy from a Print or Picture.

Make a water of soap and alum, with which wet a cloth or paper; lay it either on a print or picture, and pass it once under the rolling press, then going round the other side to take it up, you will have a very fine copy of whatever you shall have laid it upon.

How to stencil, or multiply Patterns, for working Muslins, &c.

When a print or drawing is to be copied this way, it must be placed upon a sheet of white paper, and the outline pricked through both with a pin or needle: the pierced sheet may then be laid on a second clean one, and a muslin bag of powdered charcoal shook or rubbed over it, when, on removing the former, the latter will be found a perfect copy.

To stain Paper or Parchment Yellow.

Paper may be stained of a beautiful yellow by the tincture of tumeric, formed by infusing an ounce or more of the root, powdered, in a pint of spirit of wine. This, by afterwards adding water to it, may be made to give any tint of yellow, from the lightest straw to the full colour called French yellow, and will be equal in brightness even to the best died silks. If yellow is wanted of a warmer or redder cast, annotto, or dragon's blood, must be added to the tincture.

To stain Paper or Parchment Crimson.

A very fine crimson stain may be given to paper, by a tincture of the Indian lake, which may be made by infusing the lake some days in spirits of wine, and then pouring off the tincture from the dregs.

To make White Paint.

The white destined for varnish or oil requires a metalic oxyd, which gives more body to the colour. Take ceruse, reduced to powder, and grind it with oil of pinks, and quarter of an ounce of sulphate of zinc for each pound of oil. Apply the second coating without the sulphate of zinc, and suffer it to dry. Cover the whole with a stratum of sandaric varnish. This colour is durable, brilliant, and agreeable to the eye.

Boiled linseed oil might be used instead of oil of pinks, but the colour of it would in some degree injure the purity of the white.

To make Paints from Lamp Black.

The consumption of lamp-black is very extensive in common painting. It serves to modify the brightness of the tones of the other colours, or to facilitate the composition of secondary colours. The oil paint applied to iron grates and railling, and the paint applied to paper snuff-boxes, to those made of tin plate, and to other articles with dark grounds, consume a very large quantity of this black. Great solidity may be given to works of this kind, by covering them with several coatings of the fat turpentine, or golden varnish, which has been mixed with lamp-black, washed in water to separate the foreign bodies introduced into it, by the negligence of the workmen who prepare it.

After the varnish is applied, the articles are dried in a stove, by exposing them to a heat somewhat greater than employed for articles of paper. Naples yellow, which enters into the composition of black varnish, is the basis of the dark brown, observed on tobacco-boxes of plate-iron, because the colour changes to brown when dried with the varnish.

To make a superior Lamp Black

Suspend over a lamp a funnel of tin plate, having above it a pipe, to convey from the apartment the smoke which escapes from the lamp. Large mushrooms, of a very black carbonaceous matter, and exeedingly light, will be formed at the summit of the cone. This carbonaceous part is carried to such a state of division as cannot be given to any other matter, by grinding it on a piece of porphyry. This black goes a great way in every kind of painting. It may be rendered drier by calcination in close vessels.

The funnel ought to be united to the pipe which conveys off the smoke, by means of wire, because solder would be melted by the flame of the lamp .

COLOUR-MAKING

COLOUR-MAKING is the art of preparing various colours employed in painting. This art, though one of the most curious branches of chemistry, is the least understood. The principles that govern it, differ totally from those on which the theory of the other parts of chemistry is founded ; and as the practical part is in the hands of those who sedulously conceal their methods of preparing colours, we have only a superficial theory, and are but imperfectly acquainted with the practice.

Colours are divided into various classes, such as opaque and transparent ; oil and water-colours ; simple and compound ; true and false.

Opaque colours are those which, when laid on any substance, efface every other painting or stain ; such as white and red lead, vermillion, &c. Transparent colours possess the peculiar property of leaving the ground, on which they are laid, visible through them. These are employed for illuminating maps, charts, &c.

Oil and *water-colours* are thus denominated, from their being appropriated to painting in oil and in water.

In preparing oil-colours, care must be taken to grind them extremely fine; and when they are put on the pallet, to mix those which will not dry of themselves, with drying oils; and also to mix the tinged colours in as small quantities as possible. With respect to the application of them, if employed for large pieces, they should be laid on full, in order that they may incorporate, and more firmly adhere. If they are to be glazed, particular care must be taken to paint the under-colour strong and smooth; after which, the others may be gradually added, till the whole is properly filled up. Oil-colours are, however, sometimes worked dry, where only one is used, as cameos, in which the gradations of colours of distant objects are usually managed by lights, as with crayons; and in basso relievos, which are imitations of sculpture, of every kind and colour.

Water-colours are wrought in various modes; namely, in distemper (as artists express it), where the colours are prepared in size; in fresco or painting on fresh mortar, in which case it is requisite that the colouring be quick, lest the stucco or mortar dry, before it can be laid on, and that it be neatly and carefully executed; each colour being properly placed and occasionally intermingled by parcels; in agouache, where the colours are mixed with gum, and the pencil drawn along, as in paint and washings; and lastly, in miniature, for small and delicate works, in which the colours are required to be very fine and clean, to be mixed with gum, and worked in dots or points.

Simple and compound colours. The former are perfect in themselves, such as red and white lead, vermillion, the calces of iron, &c.; the latter are formed by the union of two or more colouring substances; for instance, blue and yellow, when blended together, make a green; red and yellow, an orange; and white earth and cochineal, a lake, &c.

The last and most important division of colours, is into *true* and *false*: the former retain their pristine tinge, without fading, under every possible variety of circumstances; the latter either lose their colour entirely, or change into some other shade.

Colours are chiefly affected by being exposed to the sun during the summer, and to the cold air in winter. White lead, however, forms an exception; as when ground with oil, it retains its whiteness, if it be exposed to the weather, but degenerates into a brownish or yellowish cast, in a confined situation. Nevertheless, when it is immersed in water, it is totally divested of its colour, whether it be exposed to the effects of the air or not. In the making of colours the chief object is, that they may not fade from the influence of the weather; though it must be regretted that the most beautiful are, in general, the least permanent. It may, however, for the most part be assumed, that the more simple any colour is, the less liable it will be to change by exposure to the air.

Having thus briefly stated the general theory of colours, we shall also give some account of the different pigments which are most commonly employed by colour-makers.

BLACK, such as lamp-black, ivory-black, blue black, and Indian ink. The first of these is the finest of what are called soot-blacks, and is more used than any other. Its preparation depends on the manufacture of common resin. The impure juice collected from incisions made in pine and fir trees, is boiled down with a small quantity of water, and strained, while hot, through a bag; the dregs and pieces of bark remaining in the strainer, are burnt in a low oven, whence the smoke is conveyed through a long passage into a square chamber, at the top of which is an opening, with a large sack affixed, made of thin woollen stuff: the soot, or lamp-black, concretes partly in the chamber, whence it is swept out once in two or three days, and partly in the sack, which is occasionally agitated, in order to take down the soot, and to clear the interstices between the threads, so as to admit a free current of air. This method of preparing lamp-black, was originally invented in Sweden, but has also been introduced into this country; and is now carried on to a considerable extent in turpentine-houses, from the refuse of resinous matters.

Ivory-black is prepared from ivory, or bones, burnt in a close vessel; and when finely ground, affords a deeper and more beautiful colour than lamp-black; but it is, in general, so much adulterated with charcoal, and so grossly levigated, as to be unfit for use. An opaque deep black, for water-colours, may be prepared, by grinding ivory-black with gum water, or with the aqueous liquid that settles from the whites of eggs, which have stood some time to subside.

Blue-black is said to be prepared from the burnt stalks and tendrils of vines. This is, however, seldom done by colour-makers, who generally substitute a mixture of ivory-black, and the common blue used for dyeing cloths.

Indian-ink is an excellent black for water-colours, and consists of an equal mixture of lamp-black and common glue. Ivory-black, or charcoal, may be substituted for lamp-black; but it is seldom employed, on account of the great trouble of levigating it to a sufficient degree of fineness.

White, of which there are several kinds; as flake-white, white lead, calcined heartshorn, pearl-white, Spanish-white, egg-shell-white, and magistery of bismuth.

Flake-white, and *white-lead*, are the produce of the same metal. The preparation of the former is kept secret by colour-makers; but the latter is made, by forming thin plates of lead into rolls, and placing them so as to imbibe the fumes of vinegar contained in the vessel, over a moderate fire. Nearly the whole is thus converted into a white calx, which is collected, ground up with water, and formed into little cakes.—These two are the only whites that can be used in oil; all the rest being transparent, unless laid on with water.

Calcined hartshorn is the most useful of the earthy whites, as it contains the least proportion of alkali.

Spanish white is only chalk, very finely prepared.

Pearl-white is made from oyster-shells, as *egg-shell-white* also is from those of eggs. All theses, from their attraction for acids, necessarily destroy those colours which are compounded with any acid or metallic salt.

The *magistery of bismuth* is apt to turn black, as well as flake white, and white lead, when employed for a water-colour.

Red.—The principal red colours used in painting, are carmine, rose-pink, vermillion, and red-lead.

Carmine is the brightest and most beautiful red colour known at present.

Rose-pink is a very delicate colour inclining more to purple than scarlet. It is prepared from chalk, coloured with a decoction of Brazil-wood, heightened by an alkaline salt, which renders it very liable to fade, and of little value. This colour might be made more durable, by employing for its basis the white precipitate of lead; and by brightening it with a solution of tin.

Vermillion consists of sulphur and quicksilver, the former of which is melted when the quicksilver is stirred in, and the whole is converted into a black mass.

Red-lead is a calx, of a lively yellowish colour, which it acquires by slow calcination. Both these colours are very durable; the former, however, is the best red for oil-painting, but does not answer with water; the latter inclines to an orange; and, like other prepartions of lead, frequently turns black.

Orange.—The genuine orange-coloured paints are, *red orpiment* and *orange-lake:* the first of these is a sublimate formed of arsenic and sulphur; the other may be prepared from turmeric, infused in spirit of wine, having its colour struck upon calx of tin, and brightened by a solution of that metal. The differerent shades of orange may, however, be prepared by mixing red and yellow colours together in due proportions.

Yellow.—The chief colours of this kind are, Kings and Naples-yellow, Dutch-pink, and turbinth-mineral.

Kings-Yellow is prepared from arsenic. Its colour is very beautiful, but apt to fade, on which account, as well as from its great price, it is seldom employed.

The basis of *Naples-yellow* is lead: it therefore frequently turns black; is particularly liable to be spoiled by iron, when moist, and should never come in contact with that metal, unless previously ground in oil.

Dutch-pink is said to be prepared by striking the colour of yellow berries upon chalk finely levigated. This however we doubt much, as its basis is harder and more gritty than chalk, and its colours more durable than others prepared in a similar manner.

Turbinth-mineral is, at present, but little used in painting, though it appears to be very durable, and is therefore preferable both to Kings and Naples-yellow.

Green.—The only simple green of a tolerable degree of brightness, is verdigrease, or its different preparations: though far from being durable, it may be rendered more so as a water colour, by dissolving it in the pure tartarous acid.—A green colour may be made by compounding Prussian, or other blue, with yellow; but it is by no means fixed, and much inferior to common verdigrease.

Blue.—The principal blue colours are, Prussian and Dutch blue, Verditer, Smalt, Bice, and Indigo.

Various processes have been adopted for the making of *Prussian-blue*, of which we shall select the shortest.

Take three pounds of dried ox's blood, four pounds and eight ounces of quick lime, two pounds of red tartar, and one pound and eight ounces of saltpetre. Let them be calcined and lixiviated, when the lye should be poured into solution of four pounds of alum, and one pound of green vitriol. This operation will produce the finest blue; but the quantity will exceed little more than eight ounces and four drams.

The preparation of *verditer* is studiously concealed, so that the best chemists of Europe have been baffled in discovering its component parts. It is very bright and has a considerable tinge of green. This colour is durable in water; but, like verdigrease, dissolves in oil, and is subject to the same inconveniences.

Smalt is glass coloured with zaffre; a preparation from cobalt. It is, in general, so grossly pulverized as to be unfit for painting, and its texture is so hard that it cannot be easily levigated. Its colour is extremely bright and durable; and, if finely pulverized, is little inferior to Prussian-blue.

Bice is prepared from *Lapis Armenus*, a stone which was formerly brought from Armenia, but now from Germany. Bice bears the best body of all bright blues in common use, but it is the palest in colour. Being somewhat sandy, it is necessary to grind it very fine, and to wash it well, previously to its being used. It is as durable, and yields nearly as good a colour as Prussian-blue.

Indigo is but little employed in painting, either in oil or water, on account of the dullness of the colour. It requires no other preparation than that of being washed over before it is used.

Purple.—The only simple colour of this kind at present, is colcothar of vitriol, or *Crocus martis*. A beautiful purple lake may be prepared from logwood, by means of a solution of tin.

Brown.—The chief brown colours are bistre, and brown pink.

Bistre is prepared from the most glossy, and perfectly burnt soot, pulverized, passed through a fine sieve; then baked in a little gum-water, and formed into cakes. This is a very useful colour in water, being exceedingly fine and durable and not apt to spoil any other colours with which it is mixed. The *brown-pink* is said to consist of chalk, tinged with the colouring matter of fustic, heightened by fixed alkaline salts. It is consequently, very perishable, and seldom used.

CHAP. IX.

CLOTHES.

Blacking.

The best blacking for preserving the leather of boots, shoes, &c., and which will make it perfectly water-tight, is the following: take of yellow wax one ounce and a half of mutton suet four ounces and a half; horse turpentine half an ounce; ivory black three ounces. Melt first the wax, to which add the suet, and afterwards the horse turpentine; when the whole is melted remove it from the fire, mix in gradually the ivory-black, constantly stirring till it is cold. This composition is sometimes run into moulds, and sold under the name of blacking balls. When it is used, it may be laid or rubbed upon a brush, which should be warmed before the fire. It is also the best blacking for every kind of harness. When it is wanted in a large quantity it may be gently melted in a ladle or pot, over a chaffing dish with live coals.

Bailey's Blacking.

Take one part of the gummy juice that issues in the months of June, July, and August, from the shrub called goats-horn; four parts of river water; two parts of neat's foot oil, or some other softening lubricating oil; two parts of superfine ivory black; two parts of deep blue prepared from iron and copper; and four parts of brown sugar candy. Evaporate the water; and when the composition is of a proper consistence, let it be formed into cakes of such a size, that each cake may make a pint of liquid blacking.

Liquid Blacking.

Take of ivory black and treacle, of each three ounces; of olive oil and gum arabic, of each two drachms; of stale beer ten ounces; of vinegar two ounces; of oil of vitriol two drachms; mix the whole together.

Another Receipt for Blacking.

Two ounces of ivory black; one tea-spoonful of oil of vitriol; one table-spoonful of sweet oil; and two ounces of brown sugar; roll the same into a ball, and to dissolve it add half a pint of vinegar.

Another.

Take ivory black and brown sugar candy, of each two ounces; of sweet oil a table spoonful; add gradually thereto a pint of vinegar, cold, and stir the whole till gradually incorporated.

Another.

Three ounces of ivory black, one ounce of sugar candy, one ounce of oil of vitriol, one ounce of spirits of salts, one lemon, one table spoonful of sweet oil, and one pint of vinegar—First mix the sweet oil together, then the lemon and sugar candy, with a little vinegar to qualify the blacking, then add your spirits of salts and vitriol and mix them all well together.

N. B.—The last ingredients prevent the vitriol and salts from injuring the leather, and add to the lustre of the blacking.

Another.

Sweet oil, half an ounce; ivory black and treacle, of each half a pound; gum-arabic, half an ounce; vinegar, three pints; boil the vinegar, and pour it hot on the other ingredients.

Blacking Balls for Shoes.

Mutton-suet, four ounces; bees'-wax, one ounce; sugar-candy, and gum-arabic, one drachm each, in fine powder; melt these well together over a gentle fire, and add thereto about a spoonful of turpentine, and ivory and lamp black sufficient to give it a good black: while hot enough to run, you may make it into a ball, by pouring the liquor into a tin mould; or let it stand till almost cold, you may mould it in what form you please by the hand.

Easy Method of cleaning Boots and Shoes in the Winter-time.

When the boots or shoes are covered with dirt, take them off, and with the back of a case knife or a piece of wood cut thin at the edges like a stationer's paper-knife, scrape the dirt off with the same as clean as possible, which will be very easily done while the boots and shoes are wet. Then with a small piece of wet sponge or flannel, wipe off the remaining dirt, which the pressure of the knife cannot effect. Then place them in a dry room, or at a convenient distance from the fire for a few hours, and they will take the blacking remarkably well, and bear as fine a polish as they did before wetting. If proper attention is paid to this process, the fingers will scarcely be soiled, and much trouble will be saved by the extra brushing required when the dirt is suffered to dry on.

Liquid for Boot Tops.

Many of the liquids, sold under various denominations, for the purpose of cleaning and restoring the colour of boot tops, &c. are found very imperfectly to answer that purpose, and often to injure the leather. The following genuine receipt may be fully relied on, for actually producing this desirable effect; as well as for readily taking out grease, ink spots, and the stains occasioned by the juice of fruit, red port wine, &c. from all leather or parchment.—Mix in a phial, one drachm of oxymuriate of potash with two ounces of distilled water; and, when the salt is dissolved, add two ounces of muriatic acid. Then, shaking well together, in another phial, three ounces of rectified spirit of wine with half an ounce of the essential oil of lemon, unite the contents of the two phials, and keep the chemical liquid thus prepared, closely corked for use. The chemical liquid should be applied with a clean sponge, and dried in a gentle heat; after which, the boot tops may be polished with a proper brush so as to appear like new leather.

To prevent Shoes from taking in Water.

One pint of drying oil, two ounces of yellow wax, two ounces of turpentine, and half an ounce of Burgundy pitch, melted carefully over a slow fire. If new boots or shoes are rubbed with this mixture, either in the sunshine, or at some distance from the fire, with a sponge or soft brush, and the operation is repeated as often as they become dry, till the leather is fully saturated, they will be impervious to wet, and will wear much longer, as well as acquire a softness and pliability that will prevent the leather from ever shrivelling.

Note.—Shoes or boots prepared as above ought not to be worn till perfectly dry and elastic, otherwise their durability would rather be prevented than increased.

To prevent Snow, Water, or Rain, from penetrating the Soles of Shoes or Boots in Winter.

This simple and effectual remedy is nothing more than a little bees'-wax and mutton suet, warmed in a pipkin until in a liquid state; then rub some of it slightly over the edges of the sole where the stitches are, which will repel the wet, and not in the least prevent the blacking from having the usual effect.

To prevent Gentlemen's Hats from being spotted after a Shower of Rain.

If your hat is wet from rain, or any other cause, shake it out as much as possible; then with a clean linen cloth or handkerchief wipe the hat very carefully as well as you can, observing, that in so doing you keep the beaver flat and smooth, in the same direction as it was first placed, then with your hands fix it in the original shape, and hang it at a distance from the fire to dry. A few hours after, or the next morning, lay the hat on the table, and brush it round and round several times with a soft brush in a proper direction, and you will find your hat not in the least injured by the rain.

If the gloss is not quite so high as you wish, take a flat iron, moderately heated, and pass the same two or three times gently over the hat; brush it afterwards; and it will be nearly as handsome as when first sent home from the shop.

Preventatives against the Ravages of the Moth.

The most usual preventatives against the injury occasioned by the moth are cedar-wood and tobacco leaves. A piece of the former put into a box, if sufficiently large to emit its peculiar odour to whatever is contained in it, will effectually preserve the cloth from injury; and it is well known, that in libraries where there are books bound in Russia leather, which is tanned wtih cedar, no moth or worm will corrupt. It is common to put cedar shavings and chips into boxes, &c. which will answer just as well as the wood itself.

Tobacco leaves may be placed at certain intervals in the folds of a piece of woollen cloth; and it is sufficient to examine them once in six months, in order to renew the leaves if necessary.

Composition for restoring scorched Linen.

Boil, to a good consistency, in half a pint of vinegar, two ounces of Fuller's earth, an ounce of hen's dung, half an ounce of cake soap, and the juice of two onions. Spread this composition over the whole of the damaged part; and if the scorching were not quite through, and the threads actually consumed, after suffering it to dry on, and letting it receive a subsequent good washing or two, the place will appear full as white and perfect as any other part of the linen.

To preserve Furs, Woollens, &c.

Many woollen-drapers put bits of camphor, the size of a nutmeg, in papers, on different parts of their shelves in their shop; and as they brush their cloths every two, three, or four months, this keeps them free from moths; and this should be done in boxes where furs, &c. are put. A tallow candle is frequently put between each muff when laid by.

To keep Moths, Beetles, &c. from Clothes.

Put a piece of camphor in a linen bag, or some aromatic herbs, in the drawers, among linen or woolen clothes, and neither moth nor worm will come near them.

To stop the Rapidity of Flames when the Female Dress happens accidentally to take Fire.

If a woolen cloth was constantly kept in nurseries and sitting-rooms, especially when there are fires, laid loose upon the table, or other piece of furniture, this being always at hand, might easily be resorted to in case of accident, and being wrapt tight round the flames, or strongly pressed against them, would, by excluding the air, in many instances, soon extinguish the fire. A green baise cloth being very pliable, and likewise a neat cover to furniture, is recommended for this purpose; and if such were known in the family by the name of the *Stifling Cloth*, it probably would as readily be used when there was occasion for it, as fire engines and buckets are now. Care must be taken to procure baise of a close texture. Where the convenience of baise cloth cannot be procured, as in cottages, &c. a cloth cloak, riding-coat, or blanket, will answer much the same purpose. A man's coat will always be useful, and the first man that arrives ought to apply it.

To prevent Clothes from catching Fire.

One of the most evident methods to prevent clothes from catching fire, is, to have wire fenders placed before the fire-place, of a sufficient height to hinder the coals from flying into the room; such fenders are so placed in some parlours, but more, it is believed, for protecting the marble hearth and carpet, than for the safety of the females and children of the family. Wire screens are sometimes placed in rooms where birds are let loose, parallel to the fire-place; such as these, if more projecting ones should be objected to, might be used in common sitting rooms. One or two strong metal bars would be some protection, if close wire work should not be liked; these, of course, should come some way forward, otherwise they would not be of much use. Certainly the safest are fenders of close wire-work, projecting into the room, sufficiently open to let the heat through, but not any coals which might fly from the fire. Nurseries, in particular, should have this sort.

To prevent Danger from Wet Clothes:

Keep if possible in motion, and take care not to go near a fire or into any very warm place, so as to occasion a sudden heat, till some time after you have been able to procure dry clothes.

To clean Silk Stockings.

Wash your stockings first in white soap liquor, lukewarm, to take out the rough dirt, then rinse them in fair water, and work them well in a fresh soap liquor. Then make a third soap liquor, pretty strong, in which put a little stone blue, wrapped in a flannel bag, till your liquor is blue enough; then wash your stockings well therein, and take them out and wring them. Then let them be dried so that they remain a little moist; then stove them with brimstone, after which, put upon the wood leg two stockings, one upon the other, observing that the two fronts, or outsides, are face to face, then polish them with a glass.

N. B.—The two first soap liquors must be only lukewarm, the soap liquor as hot as you can bear your hand in it.

Blonds and gauzes are whitened in the same manner, only a little gum must be put in the soap liquor before they are stoved.

To extract Grease Spots from Silks and Coloured Muslins, &c.

Scrape French chalk, put it on the grease spot, and hold it near the fire, or over a warm iron or water-plate, filled with boiling water. The grease will melt, and the French chalk absorb it, brush or rub it off. Repeat if necessary

To take Stains out of Silk.

Mix together in a phial, two ounces of essence of lemon, and one ounce of oil of turpentine.

Grease and other spots in silks, are to be rubbed gently with a linen rag dipped in the above composition.

To take Spots of Paint from Cloth, Silks, &c.

Dip a pen in spirit of turpentine, and transfer it to the paint spot, in sufficient quantity to discharge the oil and glutten. Let it stand some hours, then rub it.

For large or numerous spots, apply the spirit of turpentine with a sponge, if possible before it is become dry.

To scour Clothes, Coats, Pelisses, &c.

If a black, blue, or brown coat, dry two ounces of Fuller's earth, and pour on it sufficient boiling water to dissolve it, and plaster with it the spots of grease; take a pennyworth of bullock's gall, mix with it half a pint of stale urine; and a little boiling water; with a hard brush dipped in this liquor, brush spotted places. Then dip the coat in a bucket of cold spring water. When nearly dry lay the nap right, and pass a drop of oil of olives over the brush to finish it.

If grey, drab, fawns, or maroons, cut yellow soap into thin slices, and pour water upon it to moisten it. Rub the greasy and dirty spots of the coat. Let it dry a little, and then brush it with warm water, repeating, if necessary, as at first, and use water a little hotter; rinse several times in warm water, and finish as before.

To take Grease out of Leather Breeches.

The white of an egg applied to the injured part, and dried in the sun, will effectually answer this purpose

To make Scouring Balls.

Portable balls for removing spots from clothes may be thus prepared. Fuller's earth perfectly dried, (so that it crumbles into a powder), is to be moistened with the clear juice of lemons, and a small quantity of pure pearl-ashes is to be added. Knead the whole carefully together, till it acquires the consistence of a thick elastic paste: form it into convenient small balls, and dry them in the sun. To be used, first moisten the spot on the clothes with water, then then rub it with the ball, and let the spot dry in the sun; after having washed it with pure water, the spot will entirely disappear.

To take out Fruit Spots.

Let the spotted part of the cloth imbibe a little water without dipping, and hold the part over a lighted common brimstone match at a proper distance. The sulphurous gass which is discharged, soon causes the spot to disappear.

To remove Spots of Grease from Cloth.

Spots of grease may be removed by a diluted solution of potash, but this must be cautiously applied, to prevent injury to the cloth. Stains of white wax, which sometimes fall upon clothes from wax-candles, are removed by spirits of turpentine, or sulphuric ether. The marks of white paint may also be discharged by the above mentioned agents.

To take out Spots of Ink.

As soon as the accident happens, wet the place with juice of sorrel or lemon, or with vinegar, and the best hard white soap.

CHAP. X

DESTROYING VERMIN.

On destroying Insects on Fruit Trees.

The Thrips.—There is no insect so fatal to grapes as the thrips. To prevent them, the vine should be well washed with the engine every evening. If washed in the heat of the sun, the vines are materially injured. Indeed, all vines should be washed every evening until the berries begin to colour, whether infected with insects or not; and, after that, no water should be given either to the borders or trees. When the washing of the trees is neglected, the thrips generally make their appearance. They may, however, be readily destroyed by a fumigation of tobacco and damp hay. After such fumigation, the plant should be well washed with pure water.

The *White Bug* is very hurtful to many peach-houses and vineries. The cause of this insect making its appearance, is much owing to the trees not being properly washed every day with the engine. When a vinery is overrun with this insect, all the old bark must be stript off the vines, and the shoots and trellis properly sponged over with black soap and warm water. I always make it a rule at the winter-pruning, to take off the outer bark, whether infected or not, as the white bugs rest between the old and the new bark. With regard to peach-trees that are infected with the white bug, they should be sponged all over in the same way; and if any appear in the spring, it is a good way to tie pieces of mat round the stem and the large branches of the tree; about these the insects take shelter from the heat of the sun. Once ever day these mats should be taken off and thrown out of the house.

Soon after you begin forcing you will observe the female much larger than the male, at which time she always goes into the hollow of a tree, or bark, and lays some thousands of eggs: these are easy to be observed, and may be picked out with a pin or small piece of stick. This is an effectual way of preventing an increase of them.

The *Brown Bug* sometimes makes its appearance on peach-trees, particularly when the trees are shaded, or near the flues. In the winter season the trees should be watered with lime water, and should also be sponged with it after the leaves are fallen.

The *Green Fly* is very destructive to peach-trees, particularly when forced. They are most effectually destroyed by washing the trees regularly every day, after begining to force. Most people give over washing when the flowers make their appearance, but always continue the washing. I never found it prevent the fruit from setting; and when any of the flies make their appearance, keep them under by proper watering with the engine, and by picking off the first buds on which they appear. I find this prevents them from breeding, and I have never had any occasion to use tobacco-smoke.

The *Red Spider* is a much more destructive insect than the former, both in peach-trees and vines, and its generation is produced by the same cause, a dry heat; but constant watering in the same manner subdues it, always taking care that every part of the leaves be wetted, otherwise the insects shelter themselves on the dry parts, and by those means escape the effects of the water.

Another.

Make a strong decoction of tobacco, and the tender shoots of elder, by pouring boiling water on them; then sprinkle your trees with the same (cold) twice a week, for two or three weeks, with a small hearth brush, which will effectually destroy the insects, and the leaves will retain their verdure until the fall of the year.

If used early, as soon as the bud unfolds itself, it will probably prevent the fly. The effect of tobacco has been long known, and elder water frequently sprinkled on honey suckles and roses, has been found to prevent insects from lodging on them.

The quantity to be made use of is one ounce of tobacco to one gallon of water, with about two handfuls of elder. You may, however, make it strong as you please, it being perfectly innocent to the plants.

Another.

The red spider is the grand enemy to the vine; after every winter's pruning and removal of the outward rind on the old wood, anoint the branches, shoots, and trellis, with the following composition, the object of which is the destruction of their eggs or larvæ:—

Soft soap	2 lbs.
Flour of sulphur	2 do.
Leaf of roll tobacco	2 do.
Nux vomica	4 oz.
Turpentine	1 English gill.

Boil the above in eight English gallons of soft river water, till it is reduced to six.

Lay on this composition, milk-warm, with a painter's brush; then with a sponge carefully anoint every branch, shoot, and bud; being sure to rub it well in every joint, hole and angle. If the house is much infected, the walls, flues, rafters, &c. are also to be painted over with the same liquor. Watering over the leaves and fruit at all times, except the ripening season, is the preventative recommended, and which all gardeners approve.

Another.

Wasps, in the month of July, will begin to swarm about the early fruits, and for their destruction, phials should be hung about the branches half filled with honey and water, or with sugar and small beer. These should be emptied and replaced once in two or three days, otherwise they do not take so well: these little animals being extremely sagacious and disliking the appearance of their own species dead.

Another.

Winter is the proper season to apply the following solution. The juices are then determined to the root:—

Soft soap, two pounds; leaf or roll tobacco, one pound; nux vomica, two ounces; and turpentine, half an English gill; boil them in eight English gallons of soft or river water, to six; and use it milk-warm.

Unnail, or untie all the branches from the wall or trellis; brush every part of the tree clean with a soft brush, such as is used in painting; then with a sponge carefully anoint every branch, root, and bud; and be sure and rub it well into every joint, hole, and angle, as it is there the eggs or larvæ of the insects are chiefly lodged. The rails, spars, &c. of the espalier or trellis, should also be anointed as above.

This operation should be repeated every winter, some time between the fall of the leaf and the first of February, as may be most convenient. The solution is effectually destructive to all kinds of insects, their eggs or larvæ.

To destroy Insects prejudicial to Apple Trees.

To one hundred gallons of human urine, and one bushel of lime, add cow-dung, to bring it to the consistence of paint. With this composition anoint the trees. The month of March is the season for applying it. If the white efflorescence-like substance, in which the insects are lodged, has made its appearance, it should previously be brushed off

To protect Grapes from Wasps.

Plant near the grapes some yew-trees, and the wasps will so far prefer the yew-tree berries as wholly to neglect the grapes.

Liquor for destroying Caterpillars, Ants, and other Insects.

Take a pound and three quarters of soap, the same quantity of flowers of sulphur, two pounds of campignons, or puff balls, and fifteen gallons of water. When the whole has been well mixed, by the aid of a gentle heat, sprinkle the insects with the liquor, and it will instantly kill them.

Methods of stopping the Ravages of Caterpillars.

Take a chafing-dish, with lighted charcoal, and place it under the branches of a tree or bush, whereon are the caterpillars; then throw a little brimstone on the coals. This, however, must be done only in small quantities, lest the sulphur destroy the plants. The vapour of the sulphur, which is mortal to these insects, and the suffocating fixed air arising from the charcoal, will not only destroy all that are on the tree, but will effectually prevent the shrubs from being, that season, infested with them. A pound of sulphur will clear as many trees as will grow on several acres.

Another method of driving these insects off fruit trees is, to boil together a quantity of rue, wormwood, and common tobacco, of each equal parts, in common water. The liquor should be very strong. Sprinkle this on the leaves and young branches every morning and evening during the time the fruit is ripening.

In the Economical Journal of France, the following method of guarding cabbages from the depradations of caterpillars is stated to be infallible, and may, perhaps, be equally serviceable to those which infest other vegetables. Sow with hemp all the borders of the ground wherein the cabbage is planted; and, although the neighbourhood be infested with caterpillars, the space inclosed by the hemp will be perfectly free and not one of these vermin will approach it.

For destroying Caterpillars on Gooseberry Bushes.

Take one Scots pint (two English quarts) of tobacco liquor (which may be made, where it cannot be purchased, by infusing any kind of tobacco in water till all the strength be extracted) which the manufacturers of tobacco generally sell for destroying bugs, and mix them with about one ounce of alum; and when the alum is sufficiently dissolved, put this mixture into a plate, or other vessel, wide and long enough to admit of a brush, like a weaver's brush, being dipped into it; and as early in the season as you can perceive the leaves of the bushes to be in the least eaten, or the eggs upon the leaves, (which generally happens about the end of May) and which will be found in great numbers on the veins of the leaves on their under side: you are then to take the preparation, or liquor, and after dipping the brush into it, and holding the brush towards the under side of the bush, which is to be raised and supported by the hands of another person; and by drawing your hand gently over the hairs of the brush, the above liquid is sprinkled, and falls in small drops upon the leaves; the consequence of which is, if the eggs are there they never come forward; and if they have already generated worms, in a minute or two after the liquor touches them, they either die or sicken, so as to fall off the bush; at least they do so upon giving it a little shake. If, upon their thus falling off they shall not appear completely dead, the bush should be held up, and either a little boiling water from a watering-pot thrown over them, or a bruise given them by a spade or shovel; or the earth, where they lie, turned over with a hoe. This preparation does not in the least injure the bushes.

To preserve Flowers, Leaves, and Fruit, from Caterpillars.

These depredators are destroyed by oils, which close the lateral pores by which they breathe. For this purpose it is advised, that on the appoach of spring, a cloth, dipped in train oil, be laid on such parts of the tree, in which there is the least appearance of them.

Account of the Caterplllars that infest Gooseberry Bushes, and the best Method of destroying them.—By Mr. John Gibb.

These Caterpillars are of three kinds, viz. the large black, the green, and white, which last are comparatively of a small size.

During the winter months, the large, or black kind, may be observed lying in clusters on the under parts, under the crevices of the bushes, and at this season, (February) I find them in that state. In the course cf eight or ten days, however, if the weather be favourable, they will creep up in the day time, feed on the buds, and return to their rest during the night. Whenever leaves appear on the bushes, they feed upon them till they arrive at maturity, which is generally in the month of June, after which they creep down under the under sides of the branches, where they lodge till the crust or shell is formed over them. In July they become moths, and lay their eggs on the under sides of the leaves and of the bark; the produce of these eggs coming into life during the month of September, feed on the leaves so long as they are green, and afterwards gather together on the under side of the branches, and in crevices of the bark, where they remain all the winter, as already said. Winter is the most proper time for attacking this sort with success, as their destruction is most effectually accomplished by the simple operation of pouring a quantity of boiling water upon them with the watering pan, while no injury is thereby done to the bushes.

The second, or green sort, are at present (February) in the shelly state, laying about an inch under ground. In April they come out small flies, and immediately lay their eggs in the veins and under the sides of the leaves; these eggs produce young caterpillars in May, which feed on the leaves till June or July, when they cast a blackish kind of skin, and afterwards crawl down from the bushes into the earth, where a crust or shell grows over them, and in that state they continue till the following April. The only method which I have hitherto found effectual for destroying these, is first to dig the ground around the bushes very deep during the winter season, by which means the greater part are destroyed, or buried too deep ever to penetrate to the surface. Secondly, in April, when the flies make their appearance, to pick off all the leaves on which any eggs are observable; this is a tedious operation, but may be done by children. If any of the enemy should escape both these operations, they will be discernible as soon as they come to life, by their eating holes through the leaves, and may then easily be destroyed without the least injury to the bushes or fruit.

The white kind, otherwise called *borers*, are not so numerous as the other kinds, though very destructive: they bore the berry, and cause it to drop off; they preserve themselves during the winter in the chrysalis state, about an inch under ground, and become flies nearly at the same time with the last mentioned kind; they lay their eggs on the blossoms, and these eggs produce young caterpillars in May, which feed on the berries till they are full grown, and then creep down into the earth, where they remain for the winter in the shelly state.

Thus I have given you a concise account of the best method I have yet discovered for destroying these destructive vermin, to be communicated to the Horticultural Society. I have tried many other methods, but found none so effectual as those above mentioned, which are recommended by this advantage, that they injure neither the bush nor the fruit; the same thing cannot be said of tobacco-liquor, snuff and soap-suds, which always render the fruit bitter and ill-tasted, and which, whatever kind of effect they may have upon the smaller kinds of caterpillars, I am certain have none upon the larger kinds. Soot, lime, and lime-water, do not affect any species of caterpillar whatever, as I have proved by repeated experiments.

To destroy Earwigs and Wood Lice.

A very simple way of ensnaring them, and by which they may be taken alive in great quantities, is to place four inch cuts of reeds, bean halm, or strong wheat straw, among the branches, and also lay a number on the ground, at the bottom of the wall. In these the insects take refuge at day break, as they depredate chiefly in the night: and any time through the day they may be blown into a bottle with a little water in it, and so be drowned. Or, a cheaper way is, to burn the straw, and scatter fresh on the ground.

To destroy Ants.

Ants that frequent houses or gardens, may be destroyed by taking flower of brimstone half a pound, and potash four ounces: set them in an iron or earthen pan over the fire till dissolved and united; afterwards beat them to a powder, and infuse a little of this powder in water; and whereever you sprinkle it the ants will die, or fly the place.

To destroy Beetles.

The mode of destroying beetles, is when the fire is put out at bed-time, to lay a little treacle on a piece of wood, afloat in a broad pan of water.—These vermin are so fond of treacle, that they will even struggle to gain it in the agonies of death.

For destroying Bugs and Worms in Wood.

An eminent physician has discovered that by rubbing wood with a solution of vitriol, insects and bugs are prevented from harbouring therein. When the strength of this remedy is required to be increased, there need only to be boiled some coloquintida apples in water, in which, afterwards, vitriol is dissolved, and the bedsteads, with the wood about them, and the wainscoting, being anointed with the liquor, will be ever after clear of worms and bugs The walls may be likewise rubbed with the composition, and some of it may be dropped into the holes where these insects are suspected to be harboured. As to the walls, they require only to be washed over with vitriol water.

To drive away Crickets.

These troublesome insects, from a superstitious notion that they bring good luck, are frequently preserved. Those who wish to have them removed will find the smoke of charcoal destroy them, and loud sounds drive them away. Cock roaches are likewise destroyed by the smoke of charcoal.

To destroy Fleas on Dogs.

Rub the animal, when out of the house, with the common Scotch snuff, except the nose and eyes. Rub the powder well into the roots of the hair. Clear lime-water destroys the whitish flea-worm without injuring the skin or hair. Oil of turpentine will likewise do so; but if there be any manginess, or the skin be broken it will give the animal much pain.

To destroy Crickets.

Mix some roasted apples with a little white arsenic powdered, and put a little of this mixture into the holes or cracks in which the crickets are; they will eat it and perish.

Remedies against Fleas.

Fumigation with brimstone; or the fresh leaves of penny-royal sewed in a bag, and laid in the bed, will have the desired effect.

To clear Gardens of Vermin by Ducks.

Ducks are excellent vermin-pickers, whether of caterpillars (such as are within their reach), slugs, snails, &c. and ought to be turned into the garden one or two days every week throughout the season. Never keep them longer in than two or three hours at a time, else they become indolent. While here, they should have a little water set down to them, if there be no pond or stream in the garden.

Never turn them into the garden in the time of heavy rains, or in continued wet weather, as in that case, and particularly if the soil be stiff, they patter and harden the surface, to the great injury of small crops and rising seeds.

The Use of Garlic against Moles, Grubs, and Snails.

Moles are such enemies to the smell of garlic, that, in order to get rid of these troublesome guests, it is sufficient to introduce a few heads of garlic into their subterraneous walks. It is likewise employed with success against grubs and snails.

To prevent Slugs from getting into Fruit-Trees.

If the trees are standards, tie a coarse horse-hair rope about them, two or three feet from the ground. If they are against the wall, about half a foot from the ground, and they will never get over it, for if they attempt it, it will kill them, as their bellies are soft, and the horse-hair will wound them.

To destroy Vermin in Children's Heads.

Take an ounce of vinegar, one ounce of stavesacre, well powdered, half an ounce of honey, half an ounce of sulphur, and two ounces of sweet oil; mix the whole well together into a liniment, and rub the head repeatedly with a little thereof

To destroy Vermin on Animals.

Oil of turpentine, when applied to animals, which were covered with insects, destroyed the insects without hurting the animal.

To destroy Wasps and Flies instantly.

Wasps and flies may be killed very fast, by dipping a feather in a little sweet oil, and touching their backs with it; they will instantly die. When intent on the fruit, and half buried in the excavations they have made, they are easily come at, and are not apt to fly about. Insects of different kinds are easily killed by oil; it closes up the lateral pores by which they breathe.

To destroy Worms in Gardens.

Water your beds with a strong decoction of walnut-tree leaves where there are worm casts; the worms will immediately rise up out of the earth, and you may easily take and cut them to pieces, and fatten your poultry therewith, or feed fish in ponds with them.

By laying ashes or lime about any plant, neither snails nor worms will come near it. As the moisture weakens it, you must, more or less, continue to renew the lime or ashes.

To destroy Worms in Gravel Walks, &c.

Pour into the holes a ley, made of wood ashes and lime: this will also destroy insects, if trees are sprinkled with it. Salt and water will do as well.

On removing Mildew, &c. in Fruit Trees. By Mr. D. Weighton.

The mildew does much more injury to peach-trees than any of the former. It is still uncertain whether it proceeds from the soil or from the air; or whether it be an insect or fungus; I have tried various experiments to ascertain its nature, but hitherto without success. It may be remarked, that trees, or plants, with rough spongy leaves are more generally attacked by it, and those with firm and smooth leaves are almost always clear of it. For instance, I have often had melons and cucumbers growing in the same frame; and the cucumbers, owing to their leaves being rough and spongy, were affected, while the melons remained clear. Further, nectarines growing in the same house along with peaches, being smoother in their leaves and fruit, are seldom hurt by it. The fruit of the Red Magdalene and Royal George peach, are seldom exempt from it, owing to the fruit being more rough and downy. I have budded the Red Magdalene peach upon the Newton and Noblesse peach, and found the graft on the Red Magdalene affected, and the fruit on the other branches not affected. I am of opinion that mildew does not increase upon the trees from shoots being left in the tree that were affected last year, for I have left shoots covered with it, and found buds spring from the same shoots with none of it on them; and others that were clear produced buds with mildew upon them. At Melville garden, where the ground is low and damp, there is no mildew upon the peach-trees; where the hot-houses stand, the sub-soil is a dry open rock, forty or fifty feet above the level of the other ground; here the mildew makes it appearance.

The mildew may be kept under (I cannot say cured) by washing trees affected by it with a mixture of sulphur and lime-water. My mode of application is by the garden-engine, with a little soap, or any other thing that may separate it from the trees; This clears them at the time, but does not prevent the mildew from returning again.

The *Honey Dew*, in some seasons, is very destructive to trees upon open walls; it is a glutinous substance, which seems to contract the minute vessels of the more tender and prevents the proper circulatian of the fluids, whereby the leaves and shoots are often destroyed. This may easily be perceived, either by its sweet taste, from whence it takes its name, or by its adhering to the fingers when touched. It makes its appearance on the young shoots and the young leaves: this is the reason why their under sides are most blemished by it; for the side of the leaf first appearing becomes the lowest when full grown. A few days after the honey-dew comes on, the green and blue fly appear, especially upon plum-trees; and if the weather be warm, two or three days will make them increase in great numbers: at first they have no appearance of wings, but if the weather continues dry and warm, they will soon be furnished with wings, and take their flight. There are many successions of them; and they greatly injure the leaves and young shoots of trees. It is imagined by some, that this glutinous matter is perspired by the tree, and that the insects come to feed upon it; and this is my own opinion. I have observed that the honey-dew sticks closest to the weakest trees, and the weakest shoots of any one tree. The method I practice to get rid of the flies is this: I water the trees two or three times a week in a plentiful manner, if the weather be dry; and while the honey-dew continues upon the trees, I add a little common salt and a quantity of broom boiled in the water. This mixture effectually kills the flies, and does not injure if too great a quantity of salt be not added. This management will make the trees shoot stronger; the dews, at the same time, which rise from the surface of the border, resting on the leaves, and tending to hinder the breeding of those insects.

CHAP. XI.

BUILDING.

Modern buildings are, in many respects more commodious and also more beautiful than those of former times, most of which were dark, low, and ill-contrived. A variety of statutes have been passed from time to time for the regulation of buildings. For the regulation of buildings within the Bills of Mortality, and in other specified places, an act was passed in the year 1774, which repeals and amends several former acts for the same purpose. By this act buildings are divided into seven rates or classes, for the purpose of subjecting them to various regulations respecting the thickness of the walls, &c.; and district surveyors are appointed to see the rules and regulations of this act properly complied with.

Before any building is begun to be erected, the master orkman is bound to give twenty-four hours' notice to the surveyor, who is to attend and view the building, and enforce the observance of the act. The fees to be paid by the builder to the surveyor, are, for a building of the first rate, 3*l.* 10*s.*; and for an alteration or addition 1*l.* 15*s.*, for a building of the second rate 3*l.* 3*s.*; and for an alteration 1*l.* 10*s.*; for the third rate 2*l.* 10*s.*; and 1*l.* 5*s.*; and for the fourth rate 1*l.* 10*s.*; and 15*s.*

In the practice of this art, in order to prevent much trouble, as well, perhaps, as expense, a plan or model of the intended building is most desirable to be had, and its conveniences and inconveniences should be particularly studied before the building is begun, so that they may be obviated, and any future alteration rendered unnecessary. A model is superior to a plan: as many persons cannot comprehend the latter without difficulty, nor sometimes even at all.

If the workmanship be agreed upon in the gross, to obviate any possibility of disagreement, you can scarcely be too minute in having the dimensions of the walls, woodwork, and plastering of every kind accurately specified. For want of this, disputes too often happen; and it is to be lamented that unprincipled workmen often take advantage of indefinite expressions in an agreement, to avoid doing that which they are in reason and justice bound to do.

Buildings intended solely for utility ought, in every part, to correspond with that design. On the other hand, in works merely for ornament, beauty alone ought to be regarded. But in structures of a mixed nature, the qualities of usefulness and agreeable effect ought to be properly combined. The situation of a building is of no trifling moment. Regard ought to be had to the quality, temperature, and salubrity of the air, the conveniences of water, fuel, carriage, &c., and also the agreeableness of the prospect. A dwelling-house ought never to be erected in or near marches or fens, nor on a boggy soil; nor too close to the banks of a river, unless it stand on a rising ground on the north-west side of the bank; nor should it be built near stagnant water. The chief rooms, studies, labraries, &c. should lie towards the east; offices which require but little heat, as kitchens, brewhouses, &c. to the south; those which require a cool fresh air, as cellars, pantries, granaries, &c. to the north: as also galleries for paintings, museums, &c. which require a steady light. The ancient Greeks and Romans generally placed the front of their houses to the south, but the modern Italians vary this rule. Indeed, in this matter, regard must still be had to the country and climate; each being obliged to provide against its respective inconveniences: so that a good parlour in Egypt might make a good cellar in England.

The materials for building are of no trifling consideration. Massive buildings, such as churches, chapels, prisons, bridges, &c. are, beyond a doubt, the best and most durable if composed of stone. And dwelling-houses, if stone, such as is obtained near the city of Bath, and of which that city is almost wholly built, could be obtained, are very good when erected with such a material; but, we think, good hard bricks are, upon the whole, as good as, if not preferable to, any other material whatever for the erection of dwelling-houses, provided the walls be made of a suitable thickness. Our reasons for preferring bricks and Bath stone in these structures is, that they are both bad conductors of heat; and in the climate of Great Britain the warmth of houses is of much importance. The poor in many parts of the island, construct the walls of their cottages wholly of earth or clay mixed with straw; such walls, if kept dry, render them much warmer than houses built of stone, particularly if the stone be of a solid compact kind.

Lastly, the mortar for building should be of the best kind.

Mortar.

The principles of making mortar do not seem by any means so well understood, even at this enlightened period, as could be wished, or indeed as they ought to be from the present improved state of our chemical knowledge. We have paid considerable practical attention to this subject, and shall therefore endeavour to establish a basis on which we think the art of making mortar ought to be erected.

It is well known that the first requisite in making good mortar is good lime, and that it should be as devoid of any clayey matter as possible. In order to make quick-lime, common lime stone, or carbonate of lime, is exposed to an intense heat, which drives off from it its carbonic acid, its quality as a stone being by this process destroyed; but it is, nevertheless, by this means in a state, by a suitable addition of carbonic acid, to become stone again. In the making of mortar, our chief object, therefore, is to supply the carbonic acid, necessary for such purpose: for it is well known, that quick-lime alone, mixed with water, will not make good mortar. Various bodies have been added to lime for this purpose; finely sifted coal ashes are one of these, and where the colour of the mortar is of no moment, perhaps equal parts of quick-lime and finely sifted coal-ashes, such as those met with in London, form a mortar equal to any, for common purposes, which can be made; this mortar possesses also the peculiar property of resisting moisture, and is therefore well calculated for such work in which the passage of water is to be prevented; its use, of course, in lining water cisterns is important. Sea sand, and the sand obtained in sand hills near the sea, will make tolerable mortar, but by no means so good as sand, or gravelly sand obtained beneath the surface of the earth, and where spring water is abundant. The fine alluvial matter of fresh-water brooks, and rivulets, provided it does not contain much clay, yield, with about an equal mixture of quick-lime, a good mortar; and indeed, where better matter cannot be had, clay itself is sometimes used, but we cannot recommend it. From practical observation we can say, that the best lime for mortar is such as is obtained from hard and compact lime-stone;

that the lime obtained from chalk is by no means so good; and that the best admixture with lime for making mortar is such that, when mixed with water, it assumes little of the pappy consistence which any mixture of clay or soft pulverised stone generally gives it. Two parts scrapings of the public roads, especially when they are repaired with lime-stone, will make, with one part lime, an excellent mortar for plastering, but, as a cement for bricks and stones, it is not to be recommended. Plastering mortar has generally some addition of cow-hair.

In general, therefore, equal parts of quick-lime, and the article which is to supply the carbonic acid, whether sand, fine gravel, coal-ashes, or other matter, will be a fair proportion of each ingredient, but it may happen, from peculiarity of circumstances, that this general rule ought to be departed from; the judgment of the operator must, of course, in such case decide. It must not be overlooked too, that water is a necessary ingredient in the composition of mortar; and from our theory it follows that that which contains the greatest quantity of carbonic acid, unmixed with substances not congenial to the composition of mortar, such as clay, and vegetable matter, must be the best. Besides, the carbonic acid and lime, which are the most important parts in the formation of mortar, there is reason for concluding that the water itself is more than a medium for the formation of the carbonate of lime; but what its precise operation is, we are not prepared to say.

To cure Damp Walls.

Boil too quarts of tar with two ounces of kitchen grease, for a quarter of an hour, in an iron pot. Add some of this tar to a mixture of slaked lime and powdered glass, which have passed through a flour sieve, and been completely dried over the fire in an iron pot, in the proportion of two parts of lime and one of glass, till the mixture becomes of the consistence of thin plaster. The cement must be used immediately after being mixed, and therefore it is proper not to mix more of it than will coat one square foot of wall, since it quickly becomes too hard for use; and care must be taken to prevent any moisture from mixing with the cement. For a wall merely damp, a coating one eight of an inch thick is sufficient; but if the wall is wet there must be a second coat. Plaster made of lime, hair, and plaster of Paris, may afterwards be laid on as a cement. The cement above described will unite the parts of Portland stone or marble, so as to make them as durable as they were prior to the fracture.

Economical Method of employing Tiles for the Roofs of Houses.

A French architect (M. Castala) has invented a new method of employing tiles for the roofs of houses, so as to save one half of the quantity usually employed for that purpose. The tiles are made of a square instead of an oblong form; and the hook that fastens them is at one of the angles, so that, when fastened to the lath, they hang down diagonally, and every tile is covered one fifth part by the superior row.

To cure Smoky Chimnies.

Put on the top of the chimney a box, in each of whose sides is a door hanging on hinges, and kept open by a thin iron rod running from one to the other, and fastened by a ring in each end to a staple. When there is no wind, these doors are at rest, and each forms an angle of 45°, which is decreased on the windward side in proportion to the force of the wind, and increased in the same ratio on the leeward side. If the wind be very strong, the door opposed to the wind becomes close, while the opposite one is opened as wide as it can be.—If the wind strikes the corner of the box, it shuts two doors, and opens their opposites. This scheme has been tried with success in a chimney which always filled the room with smoke, but which, since adopted, has never smoked the room at all. The expence is trifling, and the apparatus simple.

A Preparation to preserve Wood from catching Fire, and to preserve it from Decay.

A member of the Royal Academy at Stockholm, says, in the memoirs of that academy, "Having been within these few years to visit the alum mines of Loewers, in the province of Calmar, I took notice of some attempts made to burn the old staves of tubs and pails that had been used for the alum works. For this purpose they were thrown into the furnace, but those pieces of wood which had been penetrated by the alum did not burn, though they remained for a long time in the fire, where they only became red; however, at last they were consumed by the intenseness of the heat, but they yielded no flame."

He concludes, from this experiment, that wood, or timber, for the purpose of building, may be secured against the action of fire, by letting it remain for some time in water, wherein vitriol, alum, or any other salt has been dissolved, which contains no inflammable parts.

To this experiment it may be added, that wood impregnated with water, wherein vitriol has been dissolved, is very fit for resisting putrefaction, especially if afterwards it is brushed over with tar, or some kind of paint; in order to this, the wood must be rubbed with very warm vitriol water, and afterwards left to dry, before it is painted or tarred. Wood prepared in this manner will for a long time resist the injuries of the air, and be preserved in cellars and other low moist places. It is to be observed, that if a dissolution of vitriol is poured on such parts of timber where a sort of campignions are formed by moisture, and rubbed off, none will ever grow there again.

By boiling, for some hours, the spokes of wheels in vitriol water, they are not subject to rottenness in the parts where they enter the stocks. After boiling them in this manner, they are dried as perfectly as possible, and then, in the accustomed way, painted with oil colour.

To prevent the disagreeable Smell arising from House Drains.

As the diffusion of this noxious matter, within our dwellings, tends to produce disease and mortality, it cannot be too generally known, that a cheap and simple apparatus has been contrived for carrying off the waste water, &c. of sinks, and which at the same time prevents the possibility of any air ever returning back into the house from thence, or from any drain which may be connected with it. It is known by the name of a stink trap, and is made in brick by every bricklayer in London.

Cause and Prevention of the Dry Rot.

The cause of the dry rot in wood is moisture; and to prevent well-dried timber from decaying above or under ground, is by charring it well.

Cure for the Dry Rot in Timber, so as to make it indestructible by Water.

Melt twelve ounces of rosin in an iron pot; add three gallons of train oil, and three or four rolls of brimstone; and when melted and become thin, add as much Spanish brown, or red and yellow ochre, or any other colour required, first ground fine with the same oil, as will give the whole a shade of the depth preferred; then lay it on with a brush as hot and thin as possible; some time after the first coat is dried, give it a second. This preparation will preserve planks for ages, and keep the weather from driving through brick work.

CHAP. XII.

HEALTH.

Rules to be observed in the Apartments of those who are confined by infectious Fevers.

1. It is of the utmost importance to the sick, and their attendants, that there be a constant admission of fresh air into the room, and especialy about the patient's bed. The door, or a window, should therefore be kept open both day and night, care being taken to prevent the wind from blowing directly on the patient.

2. An attention to cleanliness is indispensible. The linen of the patient should be often changed; and the dirty clothes, should be immediately put into fresh cold water, and afterwards well washed. The floor of the room should be cleansed every day with a mop, and all discharges from the patient should be immediately removed, and the utensils washed.

3. Nurses and attendants should endeavour to avoid the patient's breath, and the vapour from the discharges, or when that cannot be done, they should hold their breath for a short time. They should place themselves, if possible, on that side of the bed, from which the current of air carries off the infectious vapours

4. Visitors should not come near to the sick, nor remain with them longer than is absolutely necessary; they should not swallow their spittle, but clear the mouth and nostrils when they leave the room.

5. No dependance should be placed on vinegar, camphor, or other supposed preventatives, which, without attention to cleanliness and admission of fresh air, are not

only useless, but by their strong smell render it impossible to perceive when the room is filled with bad air, or noxious vapours.

Rules for preserving Health in Winter.

Keep the feet from wet, and the head well defended when in bed; avoid too plentiful meals; drink moderately warm and generous, but not inflaming liquors; go not abroad without breakfast. Shun the night air as you would the plague; and let your houses be kept free from damps by warm fires. By obseving these few and simple rules, better health may be expected than from the use of the most powerful medicines.

Preventative of autumnal Rheumatisms.

For the sake of bright and polished stoves, do not, when the weather is cold, refrain from making fires. There is not a more useful document for health, to the inhabitants of this climate, than "Follow your feelings."

To promote Sleep.

No fire, candle, rush-light, or lamp, should be kept burning during the night, in a bed-room, for it not only vitiates the air in a very considerable degree, but also disturbs and prevents the rest of those whose sleep is uneasy particularly the aged, in a dark apartment, sleep generally comes on without much invitation; whereas any light in the apartment stimulates the brain, and consequently the whole nervous system, and dispels an tendency to repose.

For Contusions and Sprains.

Immediately after the accident, if no other remedy be at hand, the part may be immersed for a considerable time in water, heated to about 112°. The application of leeches will be useful, if there is much inflammation, and if there is danger of its spreading.

Cataplasm for the same.

Form a cataplasm or poultice, by mixing vinegar in a sufficient quantity of either oatmeal, linseed meal, or crumb of bread. If linseed meal be used alone, it is apt, from its tenacity to become hard and dry, thus occasioning inconvenience to the part upon which it is applied; but combined with the other articles, it is very useful for giving the poultice a necessary degree of consistence.

Application of Leeches.

In the applying of leeches to the human body, success is rendered more certain by previously drying them, or allowing them to creep over a dry cloth. To attract them, the part should be moistened with cream, sugar, or blood, and if this should be insufficient, the leech may be cooled by touching it with a cloth dipped in cold water. The escape of leeches from the part is to be prevented by covering them with a wine-glass or tumbler.

Dislocations.

In almost all cases of dislocation of joints, it will be better, if possible, to await the arrival of a surgeon: but there is one species of luxation, very alarming to the bystanders, and particularly painful and inconvenient to the sufferer, which will admit of immediate relief, if any person, gifted with presence of mind and resolution, will attempt its reduction; this is dislocation of the lower jaw. Without attempting to describe the anatomy of the parts concerned, further than to state that either one or both of the balls, or condyles, at the extremity of the lower jaw, slipped out of their sockets in the upper one, and consequently cause the mouth to be opened to its utmost extent, we lay down the following simple plan to restore them to their proper situation.

Let the two thumbs of the operator be wrapped round by a pocket handkerchief, and then introduced into the mouth of the patient, pushed as far as possible between the jaws: while the fingers are, at the same time, applied to each angle of the outsides. Now, attempt to move the bone from its situation, by bringing it, first a little forwards, and then pressing it forcibly downwards; when it will slip into its place without further trouble. The patient should, for a time, avoid much speaking, or the chewing of hard substances, in case of a recurrence of the accident.

The handkerchief is used to prevent injury to the operator's hands, which, otherwise, might be considerably hurt by the force with which the condyles return to their sockets.

Fractures.

It is premised, that where a surgeon is at hand, nothing further is to be done by the by-standers, than merely laying the body and the injured limb of the patient, entirely at rest; if the fracture is a *compound one*, that is, if there is a wound, the blood is to be staunched by the pressure of a linen or other handkerchief.

Where medical assistance cannot soon, or at all, be obtained, let the bone be reduced to its usual position, by extension of the limb, feeling at the same time, by pressing with the finger, that the two broken ends have come into exact contact, and seeing that the position of the rest of the limb is in entire accordance with what it would be if no fracture had taken place, and the patient were merely in a recumbent posture.

Now apply a plaster of soap cerate, or rags wetted by opodeldoc, or solution of sugar of lead over the part, and over this a long roller of calico, which must encircle a considerable portion above and below the fracture. Two, three, or four splints, or thin laths of wood, rounded like the bones of stays, are now to be applied under, over, and on each side of the limb, and fastened in their places by broad tapes or ribbons, or by another roller not so wide as the former, but extending from end to end of the splints. The limb is now placed as follows: If the arm has been broken, the fore arm is to be placed in a sling, formed by a handkerchief;—if the fore arm, it is to be laid in a piece of pasteboard, as long as the arm from the elbow to the wrist, and placed concavely in a sling; if the thigh bone, it is to be laid on its outside, on a pillow; and if the leg, it is to be laid on soft pillows in the same manner, with the knee a little bent.

On no account is the limb to be moved from these positions for two or three days, when union will slightly take place; and even then the motion of the limb must be very gentle; otherwise distortion, or shortening of the limb for life, and perhaps, dangerous inflammatory symptoms may take place.

Recent Cuts and Flesh-wounds.

Draw the divided parts closely into contact, and retain them in that situation by adhesive straps, of larger or smaller size, or of a less or greater number, according to the situation of the wound. The breadth of these straps, or ribbons of adhesive plaster, should be from an inch to an inch and a half, and the length from four to twelve inches, according to the extent of the incised parts. In applying them, they are first to be slightly warmed, especially in cold weather, and then one end is to be fastened at a moderate distance from the edge on one side. Now, while the union of the parts is preserved by an assistant, the other is to be conducted over to the opposite side, and being drawn tight, is to be affixed to the skin by pressure with the warm hand. A small aperture should be left between the straps, in the most depending part of the wound, for the evacuation of any matter which may afterwards happen to form during the process of adhesion. Over the straps is to be applied a roller or bandage, which may be removed once a day to inspect the progress of cure; but the straps are by no means to be removed, until the adhesion is complete.

Small Cuts and Wounds.

Moisten a piece of lint with a saturated solution of copal gum in ether, and apply it over the injured part. Moisten it once or twice a day, by pouring a sufficient quantity over it without removing the lint. If it be cut, care should be taken to bring the edges together, when the application, from its sticking quality, will keep them in that state. A bandage may also be applied; but when the mischief is not extensive, it is unnecessary.

The above will be found the most efficacious application that can be employed in such cases. It should be prepared in every family, instead of the irritating articles generally used for those purposes, which, for the most part are only productive of injury.

Burns and Scalds.

Mr. Cleghorn, a brewer in Edinburgh, has treated burns and scalds with success, by applying, in the first place, vinegar, until the pain abates; secondly, an emollient poultice; and thirdly, as soon as any secretion of matter, or watery fluid appears, by covering the sore with powdered chalk.

Treatment of Whitlow.

This is a small tumour which appears under or about the finger nail: it is attended with redness and pain, and very quickly advances to suppuration. After the abscess is evacuated of the white matter contained in it, it very soon heals of itself. The loss of the nail, however, is sometimes, through improper management, the consequence of the disease.

Boils.

Suppuration should be promoted by poultices, fomentations, &c. long exposure of the part affected to the vapour of hot water, and by stimulant plasters. When sufficiently ripe, the matter ought to be evacuated.

When there is a disposition in the body to the formation of boils, Peruvian bark, and Port wine, preparations of iron and acids, and sea bathing, have been found serviceable; also the use of diuretics, as cream of tartar, and nitre in a small quantity.

Ring-Worm.

Mr. T. J. Graham, of Cheltenham, recommends the lime-water which has been used for purifying gass, as a very efficacious remedy for the above troublesome disease. The head is to be well cleansed morning and evening with soap and water, and afterwards washed with the lime-water from the gass-works. The above lime-water is a very heterogeneous compound, so that it is impossible to say which of its ingredients is effectual. It contains lime, ammonia, sulphuretted hydrogen, volatile oil, and, probably, several other compounds of a more complex nature.

Treatment of Corns.

When small in size, they are to be removed either by stimulants or escharotics, as the application of nitrate of silver, (lunar caustic,) merely by wetting the corn, and touching it with a pencil of the caustic, every evening. Previous to this, the skin may be softened by immersion of the feet in warm water.

To remove Warts.

Nitrate of silver (lunar caustic) cures these troublesome excrescences, called warts, in an extremely simple and harmless manner.

The method of using it is, to dip the caustic in a little water, and to rub it over the warts. In the course of a few times, by so doing, they will be gone. The muriate of ammonia (sal-ammoniac) is likewise a very useful remedy. "Out of twenty years' practice," says a medical correspondent in the Monthly Magazine, "I never knew the above remedies to fail."

Treatment of the Piles.

For this very disagreeable and inconvenient disorder, it will be necessary to take gentle relaxative and purgative medicines; as sulphur, cream of tartar, and confection of senna; but the patient must avoid drastic purgatives, and above all aloes, in any shape. The following, called sulphur confection, will be found to be, perhaps, the best medicine that can be prescribed for this complaint.

Mix together in a glass or marble mortar, half an ounce of sulphur, two ounces of confection of senna, three drachms of salt-petre, in powder, and as much syrup of orange as will give the whole a proper consistence. One or two drachms of this, or a piece of the size of a nutmeg, is to be taken twice or thrice a day, so as to keep the bowels open.

Bleeding at the Nose.

When this occurs without violence, it is generally an effort of nature to relieve the body from a superabundant portion of blood; but when it becomes habitual, or when 't is the result of a blow or other violence, it ought to be put a stop to as soon as possible The best means are the introduction into the nostrils, by means of a probe, of a small piece of surgeon's lint, or soft linen, previously dipped in a solution of alum, white vitriol, or even cold water. This will, in almost all cases, put an immediate stop to the hæmorrhage.

An excellent cheap Summer's Drink.

Vinegar and water, sweetened with sugar or molasses, is the best drink that can be contrived in warm weather. I beg leave to recommend this wholesome mixture to reapers in a particular manner. It is pleasant and cooling. It promotes perspiration and resists putrefaction. Vinegar and water constituted the only drink of the soldiers of the Roman republic; and it is well known that they marched and fought in a warm climate, and beneath a load of arms that weighed sixty pounds. Boaz, a wealthy farmer in Palestine, we find, treated his reapers with nothing but bread dipped in vinegar. Say not that spirits have become necessary in harvest, from habit and the custom of the country. The custom of swallowing this liquid fire is a bad one, and the habit of it may be broken. Let half a dozen farmers in a neighbourhood combine to allow higher wages to their reapers than are common, and a sufficient quantity of any of the liquors I have recommended, and they may soon abolish the practice of giving them spirits. They will in a little while be delighted with the good effects of their association. Their grain will be sooner and more carefully gathered into their barns, and a hundred disagreeable scenes of sickness and contention will be avoided which always follows in a greater or less degree the use of spirituous liquors.

Bergamot Pears recommended for the Stone and Gravel.
(From the Gentleman's Magazine.)

I had for some years been afflicted with the usual symptoms of the stone in the bladder, when accidentally meeting with Dr. Lobb's Treatise of Dissolvents for the Stone and Gravel, I was induced on his recommendation to try Bergamot pears, and a dozen or more every day with the rind, when in less than a week I observed a large red flake in my urine, which, on a slight touch, crumbled into the finest powder; and this was the case for several succeeding days. It is ten years since I made the experiment, and I have been quite free from any complaints of that nature ever since. Yours, &c. BENEOLUS.

P. S. I do not know whether it may be material to observe that the pears I ate were of the small sort, and full of knots

Cures for the Asthma. From the Gentleman's Magazine.

For the satisfaction of a Constant Reader, who requests to know if there be any simple but effectual cure for the asthma, I take the liberty to trouble you with the following remarkable instance of the good effects of honey in asthmatic cases, as related by Dr. Monro; and sincerely wish that a fair trial of it may be attended with a farther confirmation of its utility in relieving that dreadful malady.

"The late Dr. John Hume, one of the commissioners of the sick and hurt of the royal navy, was for many years violently afflicted with the asthma. Having taken many medicines without receiving relief, he at last resolved to try the effects of honey, having long had a great opinion of its virtues as a pectoral. For two or three years he ate some ounces of it daily, and got entirely free of his asthma, and likewise of a gravelly complaint, with which he had long been afflicted. About two or three years after he had recovered his health, when he was sitting one day in the office for the sick and hurt, a person laboured under great difficulty of breathing, who looked as if he could not live many days, came to him, and asked him by what means he had been cured of his asthma. Dr. Hume told him the particulars of his own case, and mentioned to him the means by which he had found relief. For two years afterwards he heard nothing of this person, who was a stranger to him, and had seemed so bad that he did not imagine that he could have lived many days, and therefore had not even asked him who he was; but at the end of that period, a man, seemingly in good health, and decently dressed, came to the sick and hurt office, and returned him thanks for his cure, which he assured him had been entirely brought about by the free use of honey."

I beg leave just to observe, that as there are several species of asthma, arising from different causes, and in some degree differing in their effects, though generally distinguished by the appellations of the humid or moist, and dry or spasmodic, it can scarcely be expected that the same medicine should be efficacious for all or both of them; however, the honey, which seems peculiarly adapted to the dry asthma, can produce no ill effect on the moist, and is known to be in many other respects very salutary. The herb horehound has likewise been found experimentally efficacious in asthmatic complaints; a strong decoction of it drunk in a morning, and two or three times or oftener in the day, of the quantity of a large tea-cup, or half a pint, has been known to be successful in relieving the dry asthma, so far as to render its paroxysms very tolerable, and without much inconvenience; and, for the humid, I believe it seldom fails, if persevered in, as may be judged from its salutary efficacy in defluxions and curing the worst of colds. From the experience I have had of it on myself, in my own family and others, I am sure that I am justified in thus recommending it, as well as Culpepper, from whom I originally had it, and whom others will do well to consult. H. MUGG.

A Constant Reader inquires, whether there be any cure for the asthma, being myself affected with asthmatic complaints, I am equally with him desirous of information on the subject; but apprehend that a rational mode of treatment must be adapted to the particular circumstances of the case, the detail of which would scarcely be admissable into your publication. You will give me leave, however, to acquaint him, that I had laboured under a troublesome cough for some time, which, during the three winter months bore the character of a common catarrhal cough. At length it abated considerably in the day time, but returned with sudden violence on going to bed, and at, or soon after getting up in the morning, beginning and accompanied with a sense of stricture about the sternum, with short difficult respiration. In this state it was nearly allied to asthma; or rather it might be considered as a variety of that disease. Opium and æther afforded me relief; but I was unwilling to persevere in the use of such mixture of the effects of opium on the system; therefore, at the suggestion of an acquaintance, I was induced to make trial of mustard-seed, and think I have derived great benefit from it. I take about a spoonful of white mustard-seed bruised, and made into a bolus with very little honey, two or three hours before going to bed, and as much more when I awake at six or seven in the morning. The consequence has been, that I have little or no cough or sense of stricture at night, only a slight easy expectoration in the morning, and freer from all uneasy sensation about the thorax in the course of the day.

Let me add, that the greater number of cases of inveterate asthma, are too obstinate to yield thus readily, and some are deemed incurable. It is my sincere wish that your Constant Reader may not be of this latter class; and that he or some other fellow-sufferer may find relief from use of so innocent a remedy as that proposed by, Yours, &c. W.

In some of your last numbers, I have noticed several prescriptions for the relief or cure of asthmatic complaint: and I have no doubt but that most, or all of them, have been, or may be, of service in particular cases. Of a perfect cure of an asthma, I never heard; though I am sensible, that, by proper management, the complaint may be removed for considerable intervals of time. Being one o the unfortunate brotherhood, though no member of the the faculty, I am anxious to contribute my mite to the relief of some of my fellow-sufferers; and I think I could not pitch upon an easier mode of communication, than by requesting you to allot a corner of your valuable repository to a few lines of mine upon the subject.

My complaint is what is called a dry asthma. I have had it from a child; at intervals perfectly free; the fits sometimes returning when least expected, and not easily got the better of when you suffer them to take possession for any length of time. They come on generally at night, after having been in bed a little while; are longer or shorter according to circumstances, and according to the resistance the patient makes. For, independent of every other remedy, I must advise to leave the field of battle to the enemy on its first appearance; I mean, to get out of bed immediately, and to sit down in an easy chair in an erect posture.

I remember, amongst many other intervals of different duration, two intervals in my life of about eighteen months each, during which I never remained for more than one hour in bed in the night, on account of this troublesome disorder, sitting up the remainder of the night under the most painful anxiety, which nothing at that time could remove, but which was to be endured with a perfect resignation. Several remedies were tried to no purpose, and the only relief I could procure myself was, every now and then, by abstaining for a week or a fortnight from going to bed at all.

I need not tell those, who are experimentally acquainted with this disorder, to what a situation the body was reduced under such a long and unceasing affliction; but I must hasten to tell them how I got the better of the enemy, so as, if not to destroy him, at least to blunt his power; for, thank God! I have been now a great many years, by an incontrovertible experience, perfectly the master to prevent a fit of asthma, whenever, by some cause or other, an asthmatical disposition has got into the habit body, and which is, of consequence, itself very soon removed. The thing is not new, and, perhaps, I have myself contributed a good deal to its being better known, though its efficacy has not always been admitted. It is nothing more or less than a strong infusion of coffee.

I was led to try it in the last of those long asthmatical affections mentioned above; however, without much faith in the remedy, considering it merely as one of those nostrums which one meets with so frequently in society for every disorder. But to my utmost astonishment, one night, after having for the first time taken a strong infusion going to rest, I slept that night as soundly as ever I did in my life, without the least touch of asthma whatever. The experiment was too beneficial to me not to try it again an again; and it has been constantly attended with the same success. I at that time got, after a few doses, entirely the better of that long asthmatical affection; and, at every recurrence of the disorder, I have recourse to the panacea, which proves to be one to me.

My way of taking it, is one or two dishes as hot as I can possibly bear it, going to bed immediately afterwards: half an ounce at least to every cup, which I render palatable with sugar and a little cream.

A long continuance of the use of strong coffee will affect the nerves, no doubt; but one good fit of asthma, I am satisfied, shatters the nerves much more than many pounds of coffee; and in this instance, of two evils we must, as in every other, choose the least.

Preventions of the Plague.

Mr. Joseph Skinner, an eminent British surgeon, long resident at Malta, has lately republished the opinion that frictions of warm oil are undoubted preventions of the plague; and he cites numerous instances of the happy success of the practice during the late plague at Malta. He states likewise that storax, in its concrete state, is beneficially carried on the persons of the Turks for the same purpose; and that the Greek, who buried the dead at Malta, obtained protection by anointing himself with tar. Previously to applying the oil, the body should be washed with vinegar and water. The oil is then passed with a sponge over the body and renewed twice a week till the danger has passed away.

Method of preventing Hysterics.

Carraway seeds, finely pounded, with a small proportion of ginger and salt, spread upon bread and butter, and eaten every day, especially early in the morning, and at night, before going to bed, are successfully used in Germany as a domestic remedy against hysterics.

Best mode of avoiding the fatal Accidents of Open Carriages.

Jumping out is particularly dangerous (the motion of the gig communicating a different motion to the one you give yourself by jumping) which tends very much to throw you on your side or head; many suppose it very easy to jump a little forward, and alight safe; 'tis supposition, they will not find it so on trial. The method of getting out behind the carriage is the most safe of any, having often tried it when the horse has been going very fast.—Perhaps it is best to fix yourself firm, and remain in the carriage.

To fumigate Foul Rooms.

To one table-spoonful of common salt and a little powdered manganese in a glass cup, add three or four different times, a quarter of a wine glass of vitriolic acid. At every addition of the acid, the vapour will come in contact with the malignant miasmata, and destroy them

To cure a Bruise in the Eye.

Take conserve of red roses, and also a rotten apple, put them in a fold of thin cambric, apply it to the eye, and it will draw the bruise out.

To prevent the Effects of Poison of Lead on Painters, Glaziers, &c.

The physicians and surgeons of the Bath Hospital have ordered the following cautions to be made public, to be observed particularly by printers or compositors, plumbers, glaziers, painters, and other artificers.

To maintain the strictest temperance respecting distilled spirits, which had better be altogether forborne. To pay the strictest attention to cleanliness; and never, when it can be avoided, to daub their hands with paint; and, particularly, never to eat their meals, or go to rest, without washing their hands and face. Not to eat or drink in the room or place wherein they work, and much less to suffer any food or drink to remain exposed to the fumes or dust of the metal in the rooms or warehouses. As the clothes of persons in this line (painters particularly) are generally observed to be much soiled with the colours they use, it is recommended to them to perform their work in frocks of ticking, which may be frequently washed, and conveniently laid aside, when the workmen go to their meals, and again put on when they resume their work. Every business which can, in these branches, should be performed with gloves on the hands; and woollen or worsted gloves are recommended, as they may be often washed, as they should always be after being soiled with paint, or even by much rubbing against the metal. Caution is necessary in mixing or even in unpacking the dry colours, that the fine powder does not get into their mouth, or be drawn in by their breath. A crape covering over the face might be of service; but care should be taken to turn always the same side towards the face, and to clean or wash it frequently. All artificers should avoid touching lead when hot; and this caution is especially necessary for printers or compositors, who have often lost the use of their limbs by handling the types when drying by the fire, after being washed. Glaziers putty should never be made or moulded by the hand. An iron pestle or mortar would work the ingredients together, at least equally well, and without hazard.

To prevent the Mischief arising from the Bite of a Mad Dog.

Where the excision of the part bitten can be immediately performed, it is the best preventative of danger, or where the part can be burnt out by the application of a red hot iron, little danger is likely to happen. Nothing else is at all to be depended on.

To counteract the baneful Effects of Poison.

Whenever arsenic has been taken internally, by design or mistake, the best medicine is sulphuret of potash (liver of sulphur) dissolved in water. A few scruples should be dissolved in half a pint or a pint of water, and administered a little at a time, as the patient can bear it.

Method of causing Children to cut their Teeth easily.

Feed them with an ivory spoon and boat, to be made thick, round, and smooth at the edges; ivory being of the same hardness and texture, as the jaws and tender teeth, the gums are not hurt or injured, but when they are thus pressed facilitate the teeth in their progress; whereas the silver implements being of a hard texture, and the edges made thin, bruise and wound the gums, and make a hard seam; so that the teeth cannot make their way direct, and if they do cut, come irregularly; so that the operation of lancing is frequently absolutely necessary, which of course must prejudice the teeth, as some are exposed before the time they are fit to cut.

By this method, fevers, convulsions, &c. owing to the teeth being not able to find their way through the hard seam, may be prevented. It must be observed, that children cry much when feeding, as if ill, or disgusted with their food, whereas it is frequently owing to quite the contrary; for, being hungry, and over eager to take their food, they press hard, through eagerness, on the boat and spoon, which, being sharp, bruises and cuts the gums, and consequently causes great pain, which by the ivory implements will be prevented. Those who cannot afford ivory may have horn or wood, or even pewter is greatly preferable to silver, provided the edges are made thick, round, and smooth. The wooden sort, unless they are kept very sweet and clean, on that very account, are the least eligible, and should be made, however, of box, or such hard and close textured wood as is the least liable to be tainted by the milkv food.

Tincture for the Teeth and Gums.

Mix six ounces of mixture of Peruvian bark with half an ounce of sal-ammoniac. Shake them well a few minutes, every time, before the tincture is used. The method of using it is, to take a teaspoonful and hold it near the teeth; then, with a finger dipped in, rubbing the gums and teeth, which are afterwards to be washed with warm water. This tincture not only cures the tooth-ache, but preserves both the teeth and gums, and makes them adhere to each other.

Tooth Powder.

To one ounce of fine powder of bark, and one ounce of gum myrrh, add three fourths of an ounce of bole armenic, mix these ingredients well together, and they will produce an excellent tooth powder, valuable in itself, and highly approved of by many gentlemen of the faculty.

Another.

Pound charcoal, as fine as possible, in a mortar or grind it in a mill, then well sift it and apply a little of it to the teeth about twice a week, and it will not only render them beautifully white, but will also make the breath sweet and the gums firm and comfortable.

If the charcoal is ground in a mortar, it is convenient to grind it in water, to prevent the dust from flying about. Indeed the powder is more convenient for use when kept in water.

Easy and almost instantaneous Cure for the Ague.

When the fit is on, take a new-laid egg, in a glass o brandy, and go to bed immediately.

This very simple recipe has cured a great many, after more celebrated preparations have proved unsuccessful.

Remedy for Burns.

A little spirit of turpentine, applied to recent burns, will mitigate the pain, if not wholly remove it.

Efficacy of Vinegar in curing Burns and Scalds.

The application of vinegar to burns and scalds is to be strongly recommended. It possesses active powers, and is a great antisceptic and a corrector of putrescence, and mortification. The progressive tendency of burns of the unfavourable kind, or ill-treated, is to putrescence and mortification. Where the outward skin is not broken, it may be freely used every hour or two; where the skin is broken, and if it gives pain, it must be gently used. But equal parts of vinegar and water, in a tepid state, used freely every three or four hours, are generally the best application, and the best rule to be directed by.

House-leek, either applied by itself, or mixed with cream, gives present relief in burns, and other external inflammations.

Porter Plaster for Bruises.

This simple, singular, and safe remedy for bruises is nothing more than a gallon of porter simmered in an earthen vessel, till, when cool, it will be of the consistence of a plaster. This preparation was spread on an old glove, and applied round the ancle of a coachman, who was thrown off his box and miserably bruised. In three days it so effectully performed a cure, that coachee was enabled to remount his box, perfectly relieved from all swelling and pain.

For a Pain in the Ear.

Oil of sweet almonds two drachms, and oil of amber four drops; apply four drops of this mixture when in pain, to the part affected.

For Chilblains.

Soak them in warm bran and water, then rub them well with mustard-seed flour; but it will be better if they are done before they break.

To prevent Corns from growing on the Feet.

Easy shoes; frequently bathing the feet in luke-warm water, with a little salt or pot-ashes dissolved in it.

The corn itself will be completely destroyed by rubbing it daily with a little caustic solution of pot-ash, till a soft skin is formed

Cure for Warts.

The milky juice of the stalks of spurge, or of the common fig leaf, by persevering application, will, to a certainty, soon remove them.

Certain Cure for the Cramp.

An effectual preventive for the cramp in the calves of the legs, which is a most grevious pain, to stretch out the heel of the leg as far as possible, at the same time drawing up the toes towards the body. This will frequently stop a fit of the cramp after it has commenced; and a person will, after a few times, be able, in general, to prevent the fit coming on, though its approach be between sleeping and waking. Persons subject to this complaint should have a board fixed at the bottom of the bed, against which the foot should be pressed when the pain commences.

To alleviate the Pain occasioned by the Sting of Gnats.

The disagreeable itching occasioned by the sting of these insects, may be removed by volatile alkali, or immediate rubbing and washing the part affected with cold water.

At night, to rub with Fuller's earth and water lessens the inflammation.

To cure the Sting of a Wasp or Bee.

To the part affected apply oil of tartar, or solution of potash, and it will give instant ease; as also well bruised mallows.

To prevent Sea Sickness.

Drop a few drops of vitriolic æther upon loaf sugar, and let it dissolve in your mouth; or drink a few drops of æther, added to a solution of sugar, in water, to prevent its immediate evaporation.

Remedy for a Sore Throat.

Take rosemary tops, about a handful, put them into a bason, and pour a pint of boiling hot verjuice upon it; then cover it over with a tin funnel, the broad side downwards, and the steam will come through the nozzle of the funnel; then hold your mouth over the steam till it has gone down your throat.

N. B. Be very careful that you do not put your mouth too close to the funnel, as it may scald it, but let the steam go down your throat as much as possible, and repeat it as often as necessary.

A Receipt for a Cough.

Take a glass of spring water and put into it a spoonful of the syrup of horehound, and mix with it nine or ten drops of the spirit of sulphur.

An excellent Styptic.

The outside woof of silk-worms has been tried with great success by several people, more especially by a lady, who, in mending a pen, cut her thumb to the bone, and through part of the nail; it bled profusely; but by trying this styptic, and binding up the wound, the hemorrhage stopped, and the wound healed in three days.

On Drowning.

Before we describe the various methods and instruments that have been successfully adopted for recovering drowned persons, it will be useful to advert (on the plan of Dr. STRUVE) to those circumstances which deserve to be duly weighed, previously to any active measures being taken on such unfortunate occasions: 1. The season and weather; 2. Length of time the person has continued under water; 3. The state of his mind when the accident happened: whether he was intoxicated, frightened, &c.; 2. Constitution of the body, and whether he was in a state of perspiration; 5. The height from which he fell, and whether his head plunged foremost; 6. Depth of the water; whether it was cold or warm, sea, or river water, and how he was dressed. Lastly, 7. The manner in which he was taken out, whether by the legs, and without receiving any injury, or by instruments; and whether he was rolled about in a tub, or what other methods were pursued for his restoration.

Few improvements appear to have been made in the treatment of the drowned, since this important branch of medical science was first discussed. We shall briefly state the principal rules of conduct to be observed with respect to persons in that deplorable situation.

Symptoms of apparent Death by Drowning.—Coldness; paleness of the whole body; the lips of a livid hue; the mouth either open or firmly closed; the tongue blue, swelled, and protruded; the eye-lids closed, the eyes turned, and their pupils dilated; the face swelled and blue; the lower belly hard and inflated. The first signs of returning animation are, convulsive starting of the muscles of the face, or feet; motion of the eye-lids; a spasmodic shivering of the body.

Treatment.—1. After having been carefully taken out of the water by the arms, so as to prevent the least injury to the head and breast, the body ought to be carried to the nearest house (if possible, in a bier,) with the head somewhat raised: or, in fine warm weather, the resuscitative process may with more advantage be performed in the open air, especially in sun-shine.

2. When the subject is deposited, the upper part of the body should be supported half-sitting, with the head inclining to the right side

3. The clothes are to be taken off without delay, but with the greatest precaution; as violent shaking of the body might extinguish the latent spark of life.

4. The mouth and nose must be cleansed from the mucus and froth, by means of a feather dipped in oil.

5. The whole body should now be gently wiped and dried with warm flannel cloths, then covered with blankets, feather-beds, hay, straw, &c. In cold or moist weather, the patient is to be laid on a mattrass or bed, at a proper distance from the fire, or in a room moderately heated; but in the warm days of summer, a simple couch is sufficient.

6. If the patient be very young, or a child, it may be placed in bed between two persons, to promote natural warmth.

7. In situations where the bath cannot be conveniently procured, bladders filled with luke-warm water should be applied to different parts of the body, particularly to the pit of the stomach; or a warming pan wrapped in flannel gently moved along the spine; or aromatic fomentations frequently and cautiously repeated.

8. As the breathing of many persons in an apartment would render the air mephetic, and thus retard, or even prevent the restoration of life, not more than five or six assistants should be suffered to remain in the room where the body is deposited.

Stimulants generally employed.—1. Moderate friction with soft warm flannel, at the beginning, and gradually increased by means of brushes dipped in oil, till pulsations of the heart are perceptible.

2. Inflation of the lungs, which may be more conveniently effected by blowing into one of the nostrils, than by introducing air into the mouth. For the former purpose, it is necessary to be provided with a wooden pipe, fitted at one extremity for filling the nostril, and at the other for being blown into by a healthy person's mouth, or for receiving the muzzle of a pair of common bellows, by which the operation may be longer continued. At first, howe-

ver, it will be always more proper to introduce the warm breath from the lungs of a living person, than to commence with the atmospheric air. During this operation, the other nostril and the mouth should be closed by an assistant, while a third person gently presses the chest with the hands, as soon as the lungs are observed to be inflated.

3. Stimulating clysters, consisting of warm water and common salt; or a strong solution of tartar emetic; or decoctions of aromatic herbs; or six ounces of brandy, should be speedily administered. We do not consider injections of the smoke of tobacco, or even clysters of that narcotic plant, in all instances safe or proper.

4. Let the body be gently rubbed with common salt, or with flannels dipped in spirits; the pit of the stomach fomented with hot brandy; the temples stimulated with spirit of hartshorn; and the nostrils occasionally tickled with a feather.

5. Persons of a very robust frame, and whose skin after being dried, assumes a rigid and contracted surface, may be put into the sub-tepid bath of about 65°, which must be gradually raised to 75 or 80°, of Fahrenheit's scale, according to circumstances, or the body carried to a brewhouse, and covered with warm grains for three or four hours: but these expedients generally require medical assistance.

6. Violent shaking and agitation by the legs and arms, though strongly recommended, and supposed to have often forwarded the recovery of children and boys, appears to us a doubtful remedy, which can be practised only in certain cases.

7. Sprinkling the naked body of a drowned person with cold water, submitting it to the operation of a shower bath, or the sudden shocks of the electric fluid; as well as whipping it with nettles, administering emetics, and blood-letting,—are desperate expedients, which should be resorted to only after the more lenient methods have been unsuccessfully employed.

It is, however, a vulgar and dangerous error, to suppose that persons apparently dead by immersion under water, are irrecoverable, because life does not soon re-appear: hence we seriously entreat those who are thus employed in the service of humanity, to persevere for three or four hours at least, in the application of the most appropriate remedies above described: for there are many instances recorded, of patients who recovered, after they had been relinquished by all their medical and other assistants.

Treatment on the Return of Life.—As soon as the first symptoms of that happy change become discernible, additional care must be taken to cherish the vital action by the most soothing means. All violent proceedings should, therefore, be immediately abandoned, no farther stimulants applied, nor even the ears of the patient be annoyed by loud speaking, shouting, &c. At that important cricis, moderate friction only is requisite. And, if the reviving person happen to be in the bath, he may either remain there, if his sensations be easy and agreeable, or be removed to a comfortable bed, after being expeditiously dried with warm flannels: the fomentations of aromatic plants may then be applied to the pit of the stomach; bladders filled with warm water, placed to the left side; the soles of the feet rubbed with salt; the mouth cleared of froth and mucus, and a little white wine, or a solution of salt in water, dropped on the tongue. But all strong stimulants, such as powerful electric shocks, strong odours of volatile salts, &c. are at this period particularly injurious. Lastly, the patient, after resuscitation, ought to be for a short interval resigned to the efforts of Nature, and left in a composed and quiescent state: as soon as he is able to swallow, without compulsion or persuasion, warm wine, or tea, with a few drops of vinegar, instead of milk, or grael, when beer, and the like, should be given in small doses frequently repeated.

Swooning.

Swooning may arise from various causes; such as sudden and violent emotions of the mind, pungent and disagreeable odours, derangement of the stomach or bowels, debility from preceding disorders, loss of blood, spontaneous or artificial, the operation of tapping in dropsy, &c.

During the fit, the patient should be exposed to pure and cold air; the nostrils may be stimulated with some of the preparation of ammonia; or a few drops of the compound spirit of ammonia, may be given in a small quantity of water, if the patient be capable of swallowing. If it originate in a disordered state of the stomach, an emetic, if possible, should be given; or vomiting, by irritating the fauces, will probably afford relief. Sometimes sprinkling the face with cold water will recover the patient. Persons who faint without having evinced previous illness, or other symptoms of debility, may probably be relieved by moderate bleeding; this, of course, should be done under the direction of an experienced medical attendant; afterwards an opening medicine, such as sulphate of magnesia or infusion of senna, may be given. Sometimes copious draughts of chamomile tea, when nausea, vomiting, and bitter taste in the mouth are present, will be of service. But, of course, in serious affections of this kind, particularly in male subjects, the best medical advice should at once be had.

Apoplexy.

Appoplexy is a disease in which the patient is suddenly deprived of sensation, and incapable of voluntary motion. It is usually divided into two kinds, the *sanguineous* and the *serous*. The symptoms which distinguish the former, are a sound sleep preceded by giddiness, and attended with snorting, noise in the ears, coruscations, or flashings before the eyes, and redness of the face. If any thing be put into the mouth, it is immediately returned through the nose: nor can it be swallowed unless the nostrils be closed, in which case, there is danger of suffocation. In many instances it proves fatal on the first attack; and few survive a repetition of the fit. If the patient appear insensible, there is but little hope of his recovery. Those who apparently recover, are frequently carried off without being warned of its approach.

The best method of treatment, consists in placing the body in an erect posture, and supporting the head in that situation; in copious and repeated bleedings from the jugular veins, and temporal arteries, cupping, and the application of blisters to the head, or between the shoulders.

In the *serous* appoplexy, the pulse is weak, the face pale, and there is a diminution of the natural heat. This species is equally fatal with the other, and may arise from any thing which induces a debilitated state of the body, such as depressing passions of the mind, much study, long watching, &c. It may also be brought on by too plentiful an use of diluting acidulated drinks. In this species bleeding cannot be attempted with safety; acrid purgatives, emetics, and stimulating clysters, have been employed with a view to carry off the superabundant serum, but, in debilitated habits they are liable to strong objections. Opening pills, consisting of colocynth and calomel, in small doses, have been recommended; volatile salts, cephalic elixirs, and cordials are also prescribed. If a hemiflegia supervene, the cure is to be attempted by aperient ptisians, cathartics, and sudorifics, gentle exercise, especially in a carriage; blisters, and such other stimulating medicines as are proper in paralytic affections.

In this alarming disease, no person who is not of the medical profession, should rely upon his own judgment in the treatment of it: we may however, observe that we very much suspect the propriety of blood-letting at all in this complaint, and although we here state that the usual practice with medical men in the sanguineous apoplexy, is to bleed largely, yet the abstraction of blood from a person affected with this disease is of serious importance, and ought not to adopted without a thorough conviction of its utility; which utility must of course depend upon the age and state of the patient.

It is said by *Heister*, that a person died of an apoplexy, in consequence of his being constantly exposed to the scent of three or four flour-pots of white lilies, which were kept in his chamber. This fact should deter those persons to whom such odours are sensibly prejudicial from continuing long within the sphere of their influence.

Consumption.

Consumption is a very comprehensive term, including all those diseases, in which the body, from a defect of nourishment, is gradully reduced to a state of debility and emaciation. This fatal disorder may arise from a great varieth of causes, such as a mal-conformation of the trunk; straitness of the chest; intemperance of whatever kind; obstructions in the pulmonary vessels; suppression of any natural evacuations; as likewise in consequence of the pleurisies, coughs, catarrhs, diarrhœas; grief; intense study, &c. More frequently, however, it originates from a neglected cold, especially in constitutions where a peculiar hereditary disposition prevails, without any other discoverable cause.

According as consumptions are accompanied with fever, or exempt from that symptom, they may be divided into three classes: 1. Such as are occasioned by the hectic fever, which, however, is not the case of exulcerated lungs: 2. Those in which the wasting of the body, as well as the fever, arise from pulmoniculars; and 3. Where the gradual emaciation is unconnected with any febrile symptoms. Of the last species only, which is generally called atrophy, we shall treat in this place.

An atrophy always proceeds from a want of due assimilation of the nutritious juices, so that there is obviously a defective appetite, and a vitiated digestion, from the very commencement of the disease. What share the depression of the animal spirits, or an unusual irritability of the nerves, may have in the production of this malady, appears to be doubtful; and they may be considered as the effect, rather than the cause of the complaint which pervades the whole system.

Symptoms of Atrophy: General languor of body and mind; an unhealthy look of the face; a light and unsettled sleep; the appetite now voracious, now nauseating, but usually most desirous of cold food; straitness of the breast, and uneasiness after eating; great internal heat and dryness of the tongue; gradual wasting of the body: continual feverishness and thirst, especially during the night; at length a fever nearly resembling the hectic, and a total privation of strength and spirits.

Children and young persons are very liable to this disease; the former, from the unhealthy milk of a nurse addicted to passions, particularly grief and anger; the latter, from the use of improper food; heavy and feculent malt-liquors; the suppression of night-sweats, especially when occasioned by large draughts of cold beverage; by eating voraciously of crude, thick, heavy, and obstruent food; drinking spirituous liquors; long continuance of worms, &c.—Scrophulous adults, and those who have lost large quantities of blood, are also subject to atrophy.

Although this is one of the least dangerous species of consumption, yet, when neglected in its commencement, it frequently proves fatal. Hence the evacuations by stool ought to be strictly attended to, and if the stomach be foul, a gentle emetic previously administered. A diluent and nourishing diet, as circumstances may require; country air; but particularly sweet whey, and the mucilaginous bitters, such as decoctions of the eryngo-leaved liverwort, and the wood of quassia, will be of eminent service. No remedy whatever is, in this complaint, equal to the warm bath, which should be gradually reduced to a cool, and at length to a cold temperature, as soon as the patient can bear it. Among the various domestic medicines which have been occasionally employed for the cure of what is called a nervous atrophy, we are from experience convinced, that none are better calculated to restore an emaciated frame than the conjoined use of the Salep-root, vulgarly denominated Female fool-stones, or Meadow Orchis *(Orchis Morio,* L.), and the jelly obtained from the red garden snail *(Helix Pomatia,* L.): Two drams of the former, in powder, boiled in a pint of whey to the consistence of a thick mucilage, ought to be taken twice a day; and from six to eight of the latter dissolved over a slow fire, in equal quantities of milk and water, with the addition of a little cinnamon and sugar, should be used every morning. But, if the patient's appetite be considerably impaired, he may begin the course of these remedies in much smaller doses, which might be imperceptibly increased.

All symptomatical consumptions however, are so far incurable, as they depend upon the particular disorders from which they originate; and, if the latter can be remedied by art, there is no danger to be apprehended from the former: hence it is of the utmost importance to distinguish a simple atrophy from a confirmed hectic, or a pulmonary consumption. In the last mentioned two cases, all the symptoms are more violent, and either the lungs, or the tracheal mesenteric, and other glands, are exulcerated; whereas, in an astrophy, those glands are only indurated, or otherwise obstructed.—And though we disapprove of those over-nice distinctions, which serve to perplex rather than to instruct, yet, in this case, it is essentially necessary to distinguish between an atrophy and the rickets, scrophula, and that consumptive weakness of children, who pine away for want of a due supply from the breast, or in consequence of diseases preying upon the constitution of the mother or nurse. Indeed, there is but too much reason to believe, that the foundation of consumptive diseases is often laid in the cradle, by the faulty management of nurses, and the ill-judged tenderness of parents; by keeping children too warm; permiting them the breast too long; and the imprudent administration of opiates;—practices no less detrimental than common. Thus Dr. R. RUSSELL justly remarks, the process of converting aliment into chyle is injured, the habit of body rendered lax, the blood becomes too serous, the glands destined to moisten the joints increase in bulk, the heads of the bones are enlarged, and the glands of the mesentery, chest, and neck, are obstructed, till at length those of the lungs become also affected.

The alarming increase of consumptions in this countr affords an ample field for medical speculators. It is .. less astonishing than true, that about one-third of those who die in London, fall victims to that merciless disease, if the bills of mortality be taken as the basis of that calculation.

Diet.

The dietetic treatment ought to be comfortable to the different constitutions of individuals. Those whose solids are relaxed and weak, should avoid all tough or viscid food, and such as is difficult to be digested. Their nutriment, however, ought to be substantial; and they should take frequent exercise in the open air. The plethoric, or those who abound with blood, cannot more effectually consult their health, than by a sparing use of whatever is in a high degree nourishing, as fat-meat, rich wines, strong ale, &c. Their aliment should consist chiefly of bread, or other vegetables, and their drink of water, whey, or small beer.

Persons of a lean habit ought to follow a course directly opposite to that before suggested; those who are troubled with acidity, should live chiefly on solid meat; and those afflicted with hot alkaline eructations, should principally use acid vegetables. Invalids subject to the gout, to low spirits, to hypocondriac, or hysteric disorders, should avoid all flatulent food, as also all salted or smoke-dried provisions, and whatever is difficult of digestion, or apt to turn sour and rancid on the stomach.—Their food should be light, spare, cool, and of an opening nature.

Another important object to be considered, is the manner of life and age, together with the season and constitution. Those whose inclination, business or profession, lead them to a sedentary life, ought to be more sparing as to the quantity, and more attentive to the quality of their aliment, than others whose pursuits are widely different, or who are accustomed to take much exercise; the former ought particularly to avoid the use of any thing that is sour, flatulent, rancid, and oppressive to the digestive organs.

Persons liable to particular diseases, should be cautious in eating whatever tends to aggravate them. The gouty, for instance, should avoid drinking rich wines, strong soups, or acids. Those who are subject to the gravel, ought to shun all austere and astringent aliments: nor should the scorbutic indulge in animal food.

The aliment in early life ought to be light, nourishing, and taken frequently, but in moderation; that of adults should be solid, and sufficiently tenacious; the diet proper for those advanced in life, should resemble that of infancy. —At every period of life, gluttony ought to be sedulously avoided; for, not unlike too great abstinence, it destroys the powers of digestion, but the moderate repetition of aliment is necessary for restoring the continual waste of the body.

Diet ought also to be regulated according to the different seasons of the year; because variations in the atmosphere produce corresponding changes in animal bodies. In consequence of the increased elasticity of the air, in the winter, the fibres are stronger, and better qualified for performing their various functions, and for digesting the stronger kinds of food. If there be no particular reason for the contrary, generous wines, and wholesome ale, together with warm broths and infusions, may be then taken, to promote the insensible perspiration, which is in some degree checked; as the cold air remarkably contracts the cutaneous pores. Some attention should also be paid to this circumstance, that the perspiration bear a due proportion to the liquid and solid nutriment consumed.

In the spring, the quantity of food ought to be somewhat diminished, and an additional allowance of the liquor usually drunk, might be granted. In autumn, similar regulations are to be observed as in the spring; because the moisture and density of the air are nearly the same and the weather is equally variable; so that perspiration is easily obstructed. During the summer, health may be most effectually preserved by vegetables and diluent liquors. Considerable care should be taken to abstain from provisions that are heavy and difficult to be digested, but especially from wine and brandy.

The feeble and convalescent ought to eat frequently, and but little at a time: the number of meals ought to be proportioned to the weakness of their frame:—for it is far less hurtful to a debilitated person, to eat a few mouthfuls every hour, than to make two or three hearty meals in one day: an exception, however, ought to be made with respect to those who are naturally of a delicate and irritable constitution.

Family Diet.—After the various and successful experiments made by Count Rumford, and others, who have written on domestic economy, little novelty can be expected in this article; but as the present work might be considered as incomplete without some information on this important subject, we have selected a few practical hints which appear to merit particular attention.

Dr. Lettsom has observed, that pies are more advantageous than either roasted or boiled meat. This he illustrates by an account of a dinner, where eight persons were completely dined off a pie, consisting of twenty-four ounces of wheaten flour, sixty-four of mutton, and eaten with eight and a quarter ounces of bread; weighing in the whole ninety-six and a quarter ounces, while sixty ounces of mutton roasted, and eaten with thirty-three ounces of bread, weighing in the whole ninety-three ounces, dined only five of the same persons.

Milk pottage is far more wholesome than tea with bread and butter; and, if made in the following manner, is in many respects preferable to milk alone: Let equal quantities of milk and water be boiled up with a little oatmeal, which will break the vicidity of the milk, and be at the same time more easily digested than the latter in an undiluted state. Besides, oatmeal is a much warmer nourishment than wheaten flour, and agrees better with weak stomachs.

Potatoes, if properly boiled, are an excellent and nutritious food. Particular care ought to be taken that they be good, and nearly all of the same size; the larger and smaller ones should, therefore, be boiled separately. They must be washed clean, without paring or scraping, and put into a pot with cold water, but not sufficient to cover them; for their own juice will supply the apparent deficiency. If the roots be of a large size, as soon as they begin to boil some cold water should be poured in, and occasionally repeated till they are boiled through to the centre; otherwise they will crack and burst on the outside, while the inside will remain half raw. During the time of boiling, a little salt should be added, and the slower they are cooked, the better will be their flavour. As soon as potatoes are done, the water should be poured off, and the roots re-placed over the fire, in order that their moisture may evaporate, and they become dry and mealy· in which state they may be served up, without being previously peeled. This method of boiling or stewing potatoes is in every respect superior to that of steaming; as by the former process they may be dressed in a shorter time, and will retain no moisture.

Potatoes may be made into puddings, which will both prove an agreeable change of food, and be at the same time uncommonly nutritious. Dr. LETTSOM directs twelve ounces of potatoes, boiled, skimmed, and mashed; one ounce of suet, and an equal quantity of milk and cheese, to be mixed together with boiling water to a due consistence, and baked. An ounce of red-herring may be occasionally substituted for the cheese, and will give the pudding a flavour which is relished by many.

Barley-broth is a wholesome and nourishing dish; which, as it may be made with almost every kind of garden vegetables, is never out of season. Onions, leeks, and parsley, generally constitute part of the ingredients, to which may be added cabbage, or greens, turnips, carrots, and peas. These are to be mixed with four quarts of water, four pounds of beef with the bones, four ounces of common barley-meal, and stewed together for two hours, when the herbs may be added, being previously cut small, and a small quantity of salt. The whole should then boil till it be tender, and the fat skimmed off or not, at pleasure. Onions or leeks should never be omitted.

There is another article of domestic economy which is usually classed under the name of Pottage, for the making of which we have subjoined one or two recipes.

1. Take three pounds of the sticking piece of beef, a part of the shin, or any coarse piece. Boil it in eleven quarts of water for two hours; then add a pound of Scotch barley, and boil it four hours longer, when six pounds of potatoes may be added, and half a pound of onions, together with a small proportion of thyme, pepper, and salt. With these may be mixed other vegetables, and half a pound of bacon cut into small pieces. The whole should be boiled over a slow fire, that it may acquire a proper consistence. It will yield three gallons of excellent and nutritious pottage, and has been found amply sufficient for twenty soldiers, without bread; the nature of the food not requiring any.

2. Take of beef one pound, potatoes two pounds, Scotch barley, one-third of a pound, a similar quantity of onions, together with a small proportion of salt and pepper, and three ounces of bacon. The whole expense of these ingredients will be about eighteen-pence. Let them be well boiled in a due quantity of water, and they will afford nu-

triment sufficient to dine and sup three persons, without requiring either bread or beer.

Messes, or pottages like these, are doubtless far preferable to the common hot dishes, consisting of fat bacon and cabbage, with which a considerable quantity of bread and beer are always consumed. We, therefore, seriously recommend the adoption of such or similar measures of pr dent frugality, to all classes of society.

Exercise.

Exercise may be divided into two classes, *active* and *passive:* the former includes walking, hunting, dancing, running, leaping, swimming, riding on horseback, fencing, the military exercise, and, in short, all such games as require muscular exertions. Passive exercise comprehends riding in a coach, sailing, swinging, &c.

Exercise in the open air is, in every respect, preferable to that in houses, and close apartments. It ought, however, to be commenced and concluded in a gradual manner, and by no means abruptly. It should be continued only while we enjoy it without fatigue, and ought to be relinquished as soon as it becomes a task. The best time for this purpose, is the forenoon, or some time before dinner, when the stomach is not too much distended: thus it increases the circulation of the blood; attenuates and divides the fluids; and promotes a regular perspiration, as well as a due secretion of all the humours. It likewise raises the animal spirits, strengthens the muscular parts, creates appetite, and aids digestion. Hence those who take proper daily exercise, are in general robust, and afflicted with few diseases.

On the other hand, violent exercise, or even fast walking, immediately before or after meals, is extremely pernicious; for it impedes digestion; and impels to the surface of the body those fluids which are intended to promote the solution of aliment. Immoderate exercise weakens the body, destroys the elasticity of the fibres and necessarily accelerates both respiration and the circulation of the blood; which may cause a variety of accidents, namely, the bursting of small blood-vessels, inflammations, and collections of blood towards certain parts of the body, such as the heart and brain. The saline acrimony of the fluids being thus more disengaged, the fat liquifies; and ardent fevers, palsies, &c. are the melancholy consequences.

Of still greater importance is the exercise of children; for, on its proper regulation, their future health and straitness in a great measure depend. This subject having very lately been perspicuously treated by Dr. Struve, we shall subjoin only a few elementary principles from his work on Physical Education: 1. Children ought to enjoy perfect liberty to move, leap, and take exercise at pleasure. 2. They should not be taught to rely on the assistance of others; but endeavour to make every effort consistent with their own strength. 3. When in the act of falling, they ought not to be seized by the arm; and, after a fall, should not be too much pitied. 4. Every kind of spontaneous exercise is preferable to that taken by compulsion. 5. Exercise, though at an early period of infancy, must be uniform, that is, not confined to particular limbs of the body, nor at any time carried to excess.—We sincerely recommend these rules to the serious consideration of those who are engaged in the arduous and important task of rearing children; as we are fully persuaded that, by a timely attention to those circumstances, many accidents, and much deformity, may be effectually prevented.

Diseases of the Eye.

It would be deviating from our plan, to give a minute anatomical description of this most useful organ; we shall, therefore, confine our attention to the necessary treatment of the eye, in a diseased as well as healthy state; in order to ensure a sound sight to the latest period of life.

The eye is extremely tender and liable to a variety of diseases, the most common of which are the following:

1. The eye-lids are sometimes infested with tumours of different kinds, and more particularly the stye, which grows on the edge of the eye-lid; it is attended with heat, stiffness, pain; and, unless proper means be taken, with suppuration. It is a kind of abscess, which, in general, may be removed by discutient applications; but, should these prove ineffectual, a small emollient poultice may be applied, to induce a suppuration, after which the tumour will spontaneously heal. In case, however, it should not have the desired effect, a surgeon must open the stye with the point of a lancet; when the matter will be discharged.

2. Warts, and other tumours, which require the same treatment as when they arise on other parts of the body. But if, in extirpating such excresences, part of the eye-lid should be corroded, the lips of the sore should be laid as nearly together as possible, and the matter hardened on it, frequently removed, without the application of any dressings: for these, however mild, will only irritate and inflame the ball of the eye.

3. The eye-lashes are, in some cases, so much inverted as to rub upon the eye, and thus produce pain and inflammation. This complaint arises from a variety of causes, without a complete knowledge of which it would be dangerous to attempt any application. Persons afflicted with this, or any other disease in the eye, ought without loss of time, to avail themselves of professional advice, or to consult an experienced oculist, who is able to ascertain the true source from which the disorder proceeds.

4. A protrusion of the eye, if it amount to a considerable degree, is attended with much deformity and uneasiness, arising not only from a large portion of the lining of the eye-lid being turned outwards, but also from too great an exposure of the pupil. If this defect proceed from an enlargement of the eye-ball, or in consequence of a dropsical swelling, the affection of the whole system must be attended to, without applying any local remedies; but if it originate from the cicatrix of an old wound, or an abscess, it may be relieved by carefully dividing the skin,

and taking the utmost precaution to guard against the effects of inflammation ; Such operations, however, should be performed only by skilful hands.—Lastly, if it be originally produced by the small-pox, scrophula, &c. or arise from old age, the eyes should be bathed daily with cold water, or with some astringent, and saturnine solution.

5. Specks are sometimes formed upon the white part of the eye, but more frequently upon the cornea, or the transparent horny coat, which covers the sight. In the former case, they are seldom attended with much inconvenience; but, in the latter, they frequently cause either a partial or total blindness. Such specks are generally consequent to inflammation: and, if vision be materially impaired, it will be requisite to resort immediatly to surgical assistance.

6. A membranous excrescence, called pterygium, frequently appears upon the white part of the eye, and often spreads over the cornea in such a manner as entirely to destroy vision. It is either occasioned by external injuries, or arises from a general disease of the whole system, as in the scrophula, or scurvy, &c.; but inflammation is likewise the immediate cause. In this, as in the preceding complaint, the patient should not tamper with the delicate organ of sight; as, by one injudicious application, that sense may be lost beyond the possibility of recovery.

7. The eye is sometimes enlarged by an accumulation of aqueous humour; which occasions a sensation of fulness in the eye-ball, gradually impedes the motions of the eyelids, renders vision progressively more imperfect, till the unfortunate patient can at length only discriminate light from darkness. As the disorder increases, the ball of the eye becomes greatly enlarged, and the cornea begins to protrude; so that, if a puncture be not made, the eye will burst, and discharge itself. In the early stages of this disease, the sight may peahaps be preserved by proper treatment; but we earnestly exhort all patients, if they feel the value of their eyes, to avoid these pernicious nostrums, vended under the name of collyria, eye-waters, &c.

8. Blood-shot eyes, an inflammation of the membranes which invest the eye. The first and most necessary rules necessary for preventing the progress of inflammatory complaints are, rest and exclusion of light, without heating the eye by a close cover; cold fomentations repeatedly applied, when they become warm; abstinence from animal food, and all heating or stimulating liquors; mild aperients; and, if these do not produce the desired effect, leeches may be applied, near the eyes; though drawing blood, by cupping and scarifying near the temples has generally been found more effectual.

9. Gutta Serena, or Amaurosis, signifies the loss of sight, without any other visible cause or defect in the eye; except that the pupil (or the round hole for admitting the rays of light) is generally deprived of its power of contraction.

Numerous are the causes from which this unfortunate blindness may arise; but the principal of them are nervous and paralytic affections. Violent contusions of the head; apopletic fits; hot baths; suppressions of catarrhs, or periodical evacuations; metallic cosmetics; drunkenness; sudden flashes of lightning; repulsion of cutaneous eruptions; long fasting; frequent exposure to the rays of the sun; violent exercise and passions, especially terror and anger; as well as purgatives, rheumatisms, sneezing; explosion of guns; copious blood-letting; vomiting, worms, &c. all may occasion amaurosis.

Among the remedies which have been found most effectual for removing this melancholy disease, are electricity; the cold bath; hot embrocations, or blisters containing antimonial tartar, applied to the spine; leeches to the eyes of plethoric patients; the magnet fastened to the nape of the neck, and a bag of iron-filings placed over the eyes; agitation of the frontal nerve; artificial ulcers; scarifications, or issues and blisters on the back part of the head, kept open for a considerable time; cupping; cinapisms, &c. while the body should never be suffered to become costive. For this purpose we preferably recommend small doses of tartarized kali with Peruvian bark, namely, one or two drams of the former, and one or two scruples of the latter, to be taken once a-day, or oftener, as occasion may require.—Mercurial remedies have also been used with great advantage; but they ought to be regularly prescribed.

There is another disease, called cataract, namely a dimness or loss of sight from the interposition of an opaque film, either in the eye itself, or in the eye-lids. This malady generally takes place by imperceptible degrees; it is often consequent to inflammations of the eyes, and arises from the abuse of spirituous liquors, external injury, and mortification; acrid vapours, &c. In the commencement of this complaint, similar remedies to those mentioned in gutta serena, may be used with advantage; besides which, emollient cataplasms and fomentations are of service, to check the progress of the affection. If, however, it has continued for some time, the cataract must be couched, or extracted by the skilful hand of a surgeon; as there is no other prospect of removing it; though electricity and mercurial purgatives, together with a poultice of fresh hemlock, constantly kept upon the eye, and a permanent blister on the neck, are said to have sometimes afforded relief.

10. Short sight, though it cannot strictly be considered as a disorder of the eye, is nevertheless a serious evil. Those who are naturally near-sighted, are seldom relieved from that defect till they attain a certain age, when that uncommon rotundity which occasions it, gradually decreases. In order to remedy this inconvenience, they have recourse to eye-glasses, which, on certain occasions, are of real utility; but instead of using both eyes at the same time, or at least alternately, they absurdly close one, while they view an object through the glass with the other; by which means they can only inspect it sideways; a practice that deserves severe censure, inasmuch as the eye that is not exercised must necessarily become useless.

These remarks are equally applicable to those persons who can distinguish objects only at a distance; for eye-glasses to them also become necessary, to enable them to behold more minute objects with greater precision.

Weak eyes are chiefly occasioned by residing in confined situations: hence so many persons living in towns, complain of this misfortune, which can only be attributed to the want of a pure atmosphere, as well as to the confined circle of vision :—the rays of light being reflected from smooth walls, which dazzle the eyes, cannot fail to injure those organs in a very material degree.

Those parents, consequently, who have a just regard for the health of their children, cannot testify it more effectually, than by exposing them daily and frequently to the bracing influence of the fresh air; and, if it becomes necessary to confine them in nurseries, instead of selecting the smallest and lowest apartment, the loftiest and most airy should be appropriated to that purpose. For a similar reason, infants ought to spend a considerable part of their time near the windows, where distant objects may attract their attention; a practice which is highly conducive to the improvement of sight.

Those adults who are afflicted with weak eyes, should always burn two candles, placed in such a direction that their flame be neither too high nor too low; or rather make use of proper lamps. Persons of this description should never approach strong fires, nor live in hot rooms; for heat dissipates the natural moisture still remaining in debilitated eyes, so that it materially tends to weaken that organ, and at length induces total blindness. Rest, after long exertions, is very necessary and useful to the eyes, but the lids should never be too closely shut, as a continuance of that practice is very pernicious. Similar effects arise from a rude and frequent friction of these tender parts.

Few remedies for preserving the eyes are more refreshing and invigorating, than cautiously bathing them in cold water, three or four times in the day; the eye not being abruptly immersed, and the washing expeditiously managed. The drying of the eyes should likewise be carefully performed, lest that organ be too much stimulated, and at length inflamed.

Gout.

This disease is hereditary, and commences without any apparent external cause, but is in most instances preceded by indigestion, or other affection of the stomach; its paroxysms are ushered in with fever, pain at the joint, generally of the great toe, always attacking the joints, and chiefly those of the feet or hands: it returns at intervals, often alternates with indisposition of the stomach, or othe internal parts.

Forerunners of the Gout:—Indigestion often returning, thick sediment in the urine, sometimes for a whole year previous to the paroxysm, while that fluid emits the flavour of milk; vomiting, hiccough, and frequent pains of the forehead.

Peculiarities of the disease:—Chalky excrescences appear on the joints which shortly before death also cover the face; the gout infects dogs licking the sore or tumefied parts of their master, and according to some authors, it may likewise be communicated by clothes: it occurs most frequently in the spring; is often connected with the stone or gravel; and has sometimes been confounded with acute rheumatism.

Causes:—Acid food, especially sour cherries; the immoderate use of fish, sugar, wine, cyder, and spirituous liquors; in short, luxury and debauch of every kind; suppressions of diarrhœas, dysenteries, or the hemorrhodial flux; repulsion of the itch, scurvy, or other cutaneous eruptions; sleeping on fresh hay, &c.

Prevention and Cure.—Although this obstinate disease has generally been considered as incurable, and thus become too often the boon of the most ignorant pretenders, yet we believe that the want of success in the profession, must be ascribed partly to that fashionable superficial treatment which constantly aims at alleviating urgent symptoms, and partly to the difficulty of prevailing on those whimsical patients to pursue a regular and steady course of both medicine and diet, without which no radical cure of the gout can reasonably be expected.

During a paroxysm of the gout, the patient ought to be treated according to the state of his fever; and, as the disease generally takes place in three or four weeks, either by transpiration of the pores, or the discharge of urine, these secretions should be promoted by the mildest sudorifics and diuretics. Hence diluent drinks, such as barley-water, in which sal ammoniac has been dissolved, in the proportion of one dram to each pint, should be liberally drunk; but where impurities in the first passages are suspected, gentle emetics may be administered; and if fulness of blood prevail in the vessels, venesection will perhaps be advisable.—MARINO, an Italian physician, prescribed for his gouty patients half a pound of olive oil to be swallowed several times a day with uncommon success; but we apprehend that few persons will be inclined or able, to take such profuse draughts. Meanwhile the parts affected should be carefully covered with flannel: and though we do not approve of anodynes to be taken internally, because the crisis of this malady cannot be accomplished by nature without painful efforts, yet the following applications have occasionally been found of great service in abating the most excruciating pain, viz. oil of wormwood; or Peruvian balsam dissolved in alcohol; or a solution of sal ammoniac, in white wine, or a cataplasm made of elder flowers, boiled in cream, and applied as hot as the patient can bear it; or oil of wax dropped on the part affected or the skin of an eel; or liniments consisting of vinegar and soap; or the leaves of the rough bindweed; or even fresh horse dung, &c. all have, in particular cases, been employed, and found productive of good effects. Nevertheless, we by no means recommend these remedies to be indiscriminately or promiscuously used, as the propriety and safety of their applications should be determined by professional advice.

When the gout retreats to more dangerous internal parts, such as the breast and stomach, it is generally attended with vomiting, which ought to be supported by small doses of ipecacuanha, about half a grain every ten minutes, while the parts affected are rubbed with vitriolic æther. As soon as the stomach is composed, small doses of camphor or vitriolic æther, internally, will be of essential service to allay the spasmodic action of the viscera. At the same time, sinapisms should be applied to the soles of the feet, and the lower extremities kept warm; a treatment by which the pain as well as the seat of the disease, easily returns to its former place.

Various expedients and plans of regimen have been devised, in order to prevent or retard the fits of the gout. As we cannot enter into the peculiarities of different constitutions, we shall here briefly point out that mode of living which will, in general, be found the most conducive to the purpose.—Temperance in the strictest sense, total abstinence from acid, fermented and spirituous liquors, and a very moderate use of wine, are the principal circumstances to be attended to by the gouty; but, in their food also, they should be extremely careful, and avoid all fat, rancid, salted, or smoked provisions of every description, especially game and fish. Spices, pickles, and stimulating dishes, in general, are the most powerful promoters of this painful disease; while hot suppers, late hours, and long sleeping in feather-beds, are its greatest nursery. Hence, persons liable to attacks of the gout, ought attentively to observe whatever agrees or disagrees with their digestive organs; for as long as their stomach duly performs its office, there is reason to hope for a favourable change. Moderate exercise, should likewise, on no account, be neglected; because excessive fatigue and long continued application to intense study, are equally detrimental. Fear, violent grief, and an irascible temper, ought to be vigilantly controlled by the calm reflections of reason.—Beside all these precautions, however, it will be useful to adopt some particular rules of diet and regimen, in order to counteract the constitutional predisposition to that formidable disease. With this intention, we from experience recommend the constant use of barley-bread, and to bilious individuals, mare's milk, or the whey obtained from it after coagulation. Large doses of ginger, from one to four or six drams pulverized, and boiled in cow's milk for breakfast, have lately been found an excellent preventative. Absorbent powders, consisting of two scruples of calcined magnesia, with purified kali and powdered rhubarb, from three to five grains of each, have likewise been taken with considerable advantage during the intervals of gouty fits; but this medicine ought to be repeated for several weeks, or even months, at least every other morning according to the nature of the case.

Lastly, there is sufficient reason to conclude, that the internal use of the marine acid, or spirit of salt diluted with water, if continued for a proper length of time, and aided by bathing the legs daily in water saturated with a small proportion of the same acid, would greatly tend to prevent the return of the disease. Indeed, Dr. WOLLASTON has discovered, that gouty matter consists of a peculiar *(lithic)* acid which is supposed to be generated in the human body, and combined with the mineral alkali: consequently as the marine acid has a greater attraction for this alkali than the lithic acid (or that which contributes to the formation of the stone in the bladder), it appears to be a reasonable inference, that the generation of the chalky matter may be counteracted by a copious use of that acid, both internally and externally, which would preferably combine with the mineral alkali, and thus deprive the lithic acid of its nucleus or basis.

Rheumatism,

Rheumatism is a painful disease which prnicipally affects the muscular parts and larger joints of the body, in the direction of the muscles; such as the shoulder, hip, knees, &c.—If attended with fever it is called the *acute* rheumatism; but, in the contrary case, the *chronic:* in the former, the pain generally shifts from one joint to another; in the latter, it remains in most cases fixed to a particular part. After the disorder has tortured the patient for some time, the joint is commonly swoln, red, and extremely painful to the touch.

As it is often difficult to distinguish rheumatism from gout, it should be remarked, that, in the former, the stomach is less affected; that the disease is more confined to the larger joints; that it occurs at an earlier stage of life; and that it is not hereditary. In young persons the upper and internal parts above the midriff, but in the aged, those below the diaphragm, are more frequently liable to be attacked.—It is termed according to the seat of the malady; thus it is called lumbago when seizing the loins; and ischias, or sciatica, when it rages in the hip. Rheumatisms prevail in cold climates, and mostly in spring and autumn; though they may appear at any season, in consequence of sudden alternations of heat and cold.

The inhabitants of this island, suffering frequently and severely from rheumatic complaints, we shall briefly enumerate the leading causes from which they arise, namely; suppressed perspiration, by moist, cold air, especially at night; damp clothes; partial heat or cold; suppression of chronic eruptions; inhalation of metallic vapours; violent passions; and often too, after recovering from other disorders, such as fevers, fluxes, &c. in which cases it is generally chronic.

The acute rheumatism, in most instances, terminates between the seventh and fourteenth day, by perspiration, or urinary secretion, the sediment of which is copious, and resembles brick-dust: the chronic sometimes produces a looseness, or eruption, but always requires a critical perspiration to remove it completely. When, however, it changes its place from the external parts, to any of the interior organs, where it lodges, the patient is always in danger.

Cure:—If the disease be attended with fever, every thing must be avoided that may tend to irritate the system, or increase the violence of the circulation. The acute rheumatism being an inflammatory affection, the advice of the profession becomes indispensable; in order to determine upon the propriety or necessity of blood-letting, and whether this operation is to be repeated: beside which, it requires total abstinence from animal food: fermented and spirituous liquors; the use of a mild vegetable, or milk diet; together with copious draughts of bland, diluting beverage. To avoid the debilitating effects of too frequent venesection in cases of excruciating pain, especially when attended with swelling and redness, recourse may be had to leeches applied to the part, or to cupping. The principal relief is next to be expected from gentle sudorifics, when the perspiration should be promoted by luke-warm drink. If the disorder be transfered from the external to the internal parts, blisters must be applied to the spot which was previously affected: all other local applications, except warmth, are in such cases improper. After the complaint is removed, the patient should avoid all sudden changes of temperature, and at the same time apply friction to the parts formerly diseased. During the whole affliction, it will be proper to preserve regularity of the bowels, by taking rhubarb, manna, flowers of sulphur, and similar laxatives, in small doses.

The chronic rheumatism is frequently consequent on the acute, when the latter has been mismanaged: hence it will be advisable to resort to such external and internal remedies, as may restore vigour to the parts, and promote the necessary evacuations, especially a proper state of perspiration. Gentle sudorifics, such as infusions of elder-flowers, white-wine whey, and ipecacuanha in small doses, have often procured relief; but the more active medicines, for instance, the oil of turpentine, guaiacum, and antimonials, must be cautiously prescribed With the same intention, we shall observe that the extract of the large blue wolf's bane, *(Aconitum Napellas,* L.) has been found uncommonly efficacious in restoring perspiration, and dispersing the swelling; but, like other narcotics recommended for this purpose, it requires great circumspection.

As costiveness frequently retards the cure, it ought to be relieved by the mildest laxatives. The diet should, in general, be nourishing: and generous wine, moderately taken, will greatly conduce to recovery. The external means are, warmth by flannel worn next the painful part; frictions, vapour-baths, electricity, exercise, and the volatile liniment; but the other oils and unctious preparations must be avoided, as they are apt to stop perspiration, and thus to protract the disorder.—Lastly, blisters, and cataplasms of mustard, horse-radish, leaven applied to the suffering parts, or to the vicinity, have often proved beneficial.

The Lumbago, Sciatica, &c. being a species of the same disease, require a similar treatment; though the rheumatism of the hip, may, in general, be successfully removed by a blister six inches long, and four broad, applied to the outside of the leg, immediately under the knee, and kept in a state of suppuration till the pain ceases.

Scurvy.

The scurvy has been divided into several species, an investigation of which would be foreign to our purpose, especially as the land-scurvy only differs from the sea-scurvy by being less severe.

Symptoms :—Debility; dejection of spirits; bleeding and decay of the gums; fetid breath; Spots of various colours, but mostly of a livid hue, on the thighs, legs, and particularly at the roots of the hair. In the progress of this malady, blood issues from different parts of the body, and ulcers are formed, which emit only an ichorous humour, and are with difficulty healed. The patient is now subject to great pain and fainting, on the least motion; or when exposed to the fresh air, his feet will swell; breathing is impeded; and at length diarrhœa, dropsy or fainting terminates his sufferings.

Causes:—Low and damp habitations; an inactive life; suppressed or excessive evacuations; impure air; inattention to cleanliness; depressing passions; coarse, unwholesome, salted and smoked food, when taken for a considerable time, and without a proper share of vegetables; foul water; want of malt liquor—to the influence of all which causes, seafaring persons are particularly subject, as well as the inhabitants of northern climates.

Cure.—It is evident from the preceding statement, that the principal relief must be afforded by a diet and regimen exactly opposite to the cause. Thus, if the scurvy originated from low, damp, or confined air, the patient must be removed to an open, dry, and warmer situation: if it arose from inactivity, a sedentary life, or depressing passions, recourse should be had to exercise in the open air; and he should endeavour to divert his mind by cheerful company and pleasing amusements. Suppressed evacuations must be restored with precaution, and by mild aperients, the most eligible of which are tamarinds, prunes, cream of tartar, and rhubarb. When the scurvy proceeds chiefly from the long-continued use of salted provisions, it will be necessary to take medicinally, large portions of the juice of lemons, oranges, limes, tamarinds; water-cresses, brook-lime, scurvy-grass, and fresh vegetables of every description; but where the latter cannot be procured, pickled or preserved cabbages, cucumbers, onions, gooseberries, and other fruits as well as horse-radish and mustard, may be employed with equal advantage. At first, however, the patient ought to eat or drink the remedies above specified with great moderation; in order to avoid a diarrhœa or flux. For common beverage, good cyder, perry, whey, spruce-beer, or a simple decoction of spruce-fir (of which last two pints are to be drunk every day) will prove highly beneficial: with the same intention, Bishop BERKLEY recommends tar-water. One of the most efficacious antiscorbutics, however, is Sauer Kraut, a well-known preparation of the white cabbage; which alone has often checked the progress of scurvy, under the most alarming appearances.

Sleep, &c.

The proper duration of sleep must be regulated according to the different constitutions and ages of individuals. Thus, in the first six months of its existence, an infant may be allowed to sleep the greater part of the day: but, after that period, it will be necessary to abridge this indulgence, gradually, with the advance of years. For children, from the age of seven years to that of adolescence, and also for aged persons, eight or nine hours of nightly rest will be required; but for adults, and those who are not obliged to fatigue themselves with mental or bodily exertions, six or seven hours will be sufficient.

Bed-room.—Those happy few who, from their respective situations in life, are enabled to choose a large and spacious bed-room for breathing in, at least, one third of their existence, may consider themselves peculiarly fortunate. It must, however, be confessed, that little attention is generally paid to this important object, even by such persons as might, in this respect, equally consult their health and convenience.

A bed-chamber ought never to be on a ground floor, or have a northern aspect. Although, on account of a cooler air, many prefer this situation in summer, yet it cannot fail to be unwholesome, as it is most exposed to the influence of a damp atmosphere in the morning, and during the night. Hence we are of opinion, that an eastern front is more conducive to health; because it receives the first rays of the sun, that beneficient luminary, who, more regularly than a time-piece, awakens the man of a sound body and mind, while he animates, invigorates, and incites him to rise, after having refreshed himself by repose. Besides, a moderate degree of heat, thus naturally imparted, may be more easily endured, and modified, if necessary, by various means, than a moist and pernicious atmosphere, which even the dry air of summer cannot easily correct.

For similar reasons, small closets and concealed beds are extremely injurious, especially to young people and invalids. When persons are from necessity obliged to sleep in them, it will be advisable every morning, immediately after rising to displace all the bed-clothes; and if the sky be serene, to open the door and windows, in order to purify the stagnant air of so confined a resting-place: but we think it, on the whole, a dangerous practice to sleep with open windows, whether at night or in the daytime; though a very small aperture, without admitting a current of air to pass through the room, may occasionally be useful. Nor should the bedstead be placed near a wall; or soiled linen be suffered to remain in an apartment where the purity of the air is of the first importance. A bed, or couch, ought to stand free on all its sides, and, if possible, in the middle of the chamber: which is farther of consequence to timid individuals, who tremble during the prevalence of a tempest or thunder-storm. We know from experience, that a flash of lightning, should it unfortunately strike a building, or enter through any of the windows, uniformly takes its direction along the walls, without injuring the furniture in the centre of a room.

Bed-time.—Although it would be difficult in the present irregular state of society, to lay down rules for the proper time of resorting to that place which suspends and makes us forget our daily troubles and cares; yet, when we consider the subject with regard to its influence, as well on the health as on the moral character of man, it is deserving of the most serious discussion. Much, indeed, depends on the arrangement of the day, and the different pursuits of the individual. Those persons who spend the greater part of their time in useful labour, and have sufficient muscular exercise, would better consult their health, by retiring at least two or three hours before mid-night; which, according to the oldest and most accurate observers, are nearly as refreshing as double that portion in the morning. Those, however, who lead an idle and luxurian life, are too much the slaves of fashion, habit, and caprice, to adopt any useful changes, which might abridge their amusements or imaginary comforts.

On the other hand, the studious, and especially speculative persons, cannot comply with what are generally called "regular hours;" because their pursuits are better adapted to the solemn stilness of night, while they indulge in reflections which require a continued series of thought, and reasoning uninterrupted by the noise of day. Yet, even literati and artists, ought to pay due attention to this important circumstance, that the atmosphere of the night is always more vitiated, and consequently less fit for respiration, than that of a serene day; and as we respire greater portion of air while awake, than in a sleeping state, it follows that the system must be more injured in the former than in the latter case.

Nor would it be proper to retire to rest immediately after a full meal, or in an agitated state of mind. Hence, two hours after a light supper ought to elapse, in order to prepare ourselves for an invigorating repose, and banish all gloomy or depressing ideas and thoughts which require mental exertion. For the same reason, we should remove from our sight every object which may irritate the nerves, and never adopt that pernicious practice of reading till we fall asleep—an imprudence of which many young and houghtless persons are guilty. Instead of such a dangerous expedient, it would be more salutary to walk up and down the room for a few minutes, or to take any other gentle exercise.

Lastly, we are of opinion, that such individuals as breakfast at nine, dine at two, and drink tea at six; or instead of this, eat a light supper between seven and eight o'clock, might, with the greatest benefit to their health, retire to bed at ten, and rise at five or six o'clock in the morning, or earlier, according to the degree of exercise they have taken on the preceding day.

Sleep-walking, or *Somnambulism*, a remarkable disorder, proceeding from an inflamed or disturbed imagination: and in which the patient's eyes are widely open; though he can discern no object: at the same time he has the power of recollection; directs his walks to some particular spot; and, after arriving at the end of his nocturnal journey, he returns to bed, apparently composed, and sleeps calmly during the remainder of the night.

Dr. Cullen considers this affection as an active species of the nightmare *(oneirodynia activa)*, and consequently as originating from the same source.

The causes, however, which have generally been supposed to induce somnambulism, are: a very plethoric state of the blood, especially that towards the head; a disturbed imagination, in consequence of horrid dreams; or particular causes that harass the mind during sleep; and according to Levade, contusions of the brain.

Cure.—Where plethora is the cause, the first passages ought to be cleared by a powerful cathartic; and some blood should then be taken, either from the arm or from the foot; after which, alterative powders, consisting of nitre, cinnabar, and crabs-eyes, in due proportions, have been prescribed with advantage.—Electricity, and frequent bathing, have occasionally proved of service; and it will farther be advisable to place a vessel of water, or wet cloths, contiguous to the bed-side, so that the patient, by the sudden stimulus on the soles of his feet, be immediately awakened.—Should these remedies fail of success, it has been strongly recommended by medical writers, to watch the patient, and to chastise him as often as he is about to renew his nocturnal rambles; yet we do not approve of such coercive measures.

Wounds.

To enter into a full discussion of the different kinds of wounds, as denominated from the parts affected, would exceed the limits of this work: we shall therefore, first give a short account of wounds in general, and afterwards treat of such casualities, according to their particular situations.

The danger attending a wound, depends chiefly on the part which is injured, and on the constitution of the patient. If, however, the heart, any of the large internal blood-vessels, the spinal marrow, or the brain, be wounded, the assistance of an expert surgeon ought instantly to be procured; as the event generally proves fatal. Similar consequences may be apprehended, when nerves proceeding to the heart are materially injured.

On the other hand, if the wound be superficial, or what is usually termed a cut, in the upper or lower extremities, especially in the lower part of the arm, hand, finger, or in the leg or foot, it will be advisable immediately to compress the wounded part (without examining its size and dimensions), so as to exclude every access of air, and to prevent the efflux of blood:—next, any tenacious matter, such as glue, shoe-maker's wax, gold-beater's leaf, or the common sticking-plaster of the shops, should be speedily applied. Thus artizans, working with edged tools, very properly treat the frequent accidents of this nature: and, though the wound may extend even to the bone, yet it will in this simple manner, be safely and expeditiously healed. Nay, daily experience evinces, that external injuries of the head, neck, breast, &c. may be successfully treated by a similar method, especially the aid of slips of adhesive plaster; which, in the latter situation, must be applied to the part during the act of inspiring; so that it may not be displaced by the alternate expansion and contraction of the muscles in breathing; and that it may prove no impediment in that important process of the animal economy. Where, however, a wounded part has been neglected, and exhibits rough edges: or, if the skin and muscles have been lacerated, a different treatment must be adopted: in these cases, a pledget or lint dipped in sweet oil, should bo applied to the injured spot, and the whole covered with a piece of fine oil-cloth. After twenty-four hours, the first dressing may be removed, without tearing or breaking the small fibres adhering to the lint; when the pledget ought to be renewed. On such occasions, a proper bandage will be indispensably necessary, in order to promote the juncture of the lips of the wound; but, in case the latter shew a disposition to suppurate, the use of oil will be hurtful.

In fresh wounds, or in severe bruises, the application of cold water is strongly recommended by NANNONI, an Italian; and Arquebusade water, by THEBAN, the first German surgeon.—PERCY advises the following efficacious ointment: Take a small glassful of the clarified juice expressed from the green leaves of the burdock, and a similar portion of almond or olive-oil: these liquids must be duly incorporated in a pewter vessel or mortar, by means of a leaden pestle. Thus a green ointment may be obtained, which may be spread on lint or soft linen, and applied to the wound every twelve hours, or oftener. This preparation softens the callous edges of the ulcer, and cleanses the latter, while it equally promotes suppuration and cicatrization. If the fungous flesh grow two rapidly, the simple juice of burdock, without the oil, will be preferable. At each dressing, the pledget or lint may be covered with a fresh leaf of the same plant; which my also be laid on the newly formed scar, with a view to render it more firm. —As the unguent above described is in great estimation on the Continent, Dr. UNZER adds, that it may be preserved for a considerable time, when kept in a cool place; or, for long voyages it should be boiled, and allowed to become cold, two or three different times, till it acquire a thick consistence.

M. de KESSEL a respectable German writer, observes from long experience, that new honey spread on folded linen, affords an excellent remedy for fresh and bleeding wounds, which ought not to be washed or otherwise handled; provided they contain no foreign substance, for instance, glass, splinters, &c. If they happen to be deep, or have large orifices, the honey plaster should be repeated every four or five hours, and after some days, only once in twenty-four.—He farther states, that such application not only stops the bleeding, but also prevents inflammation, swelling, and suppuration, while it checks the growth of fungous flesh.

In all open wounds, it is an oject of the first importance, that the patient, especially during the act of dressing them, oreathe a pure salubrious air; for, a foul or contaminated atmosphere, such as that of hospitals, and crowded habitations, always increases the danger; so that small superficial injuries have, from that source, frequently been attended with fatal effects.

Tight bandages often occasion a considerable swelling of the adjacent parts: in such cases, the roller ought to be very gradually removed; as, otherwise, the tumefaction of the compressed places will suddenly increase, and sometimes terminate in mortification. Hence PETIT recommends the bandage to be renewed every three hours, so that it may each time be less tightly fastened. In wounds which from their nature cannot be speedily healed, the use of goulard-water, or other preparations of lead, is extremely improper; as they should, from their commencement, be dressed with suppurating remedies. Hence, in all cases of febrile heat, and external inflammations, emollient poultices, composed of the crumb of bread boiled in milk, must be instantly applied, and changed several times in the day; or, as often as they become cold, without disturbing or touching the wounded part with the fingers.

In order, if possible, to obviate the symptoms of inflammation, it will, in some instances, be advisable to draw blood of a vein in the arm or foot; to resort to opening medicines, such as neutral salts, with a few grains of nitre; to apply similar clysters; and, on the whole, to observe a cooling regimen. Such treatment is particularly necessary, in consequence of stabs or cuts given with sharp-pointed or edged instruments, and in other wounds proceeding to interior parts. Hence TISSOT remarks, that persons who had been dangerously wounded in the chest, in the abdomen, or in the thighs, have completely recovered by abstaining from all animal food, even from broths, salted and pickled provisions of every description; while they subsisted exclusively on barley-water, wort, or other mucilaginous vegetable decoctions; without using any medicines, or applying ointments. On the other hand, frequent blood-letting, as well as the internal use of balsamic drugs, or what are emphatically termed vulnerary herbs, generally tend to increase febrile heat, and consequently render the wound more dangerous than if its healing were solely intrusted to the efforts of nature. In short, venesection will be proper only in those cases which admit of cooling repellent applications, in the very first stages of external inflammation. But, if the latter become violent, being attended with great tension, irritation, and pain, it will be proper to apply either the emollient poultice before mentioned, every three hours; or fomentations made of elder and chamomile flowers, wormwood, &c.; or, according to circumstances, a solution of Venice soap in spirit of wine. Thus, if the inflammation cannot be resolved, and must be suffered to terminate in suppuration, the method here pointed out will be applicable; and in order to mitigate acute pain, KIKLAND recommends warm oil to be applied; an ancient remedy, the excellence of which is recorded in the history of the Good Samaritan. Nay, the modern Arabs heal their gun-shot wounds in a similar manner, by pouring into them fresh warm butter.

As soon as suppuration takes place, the symptomatic fever generally subsides; but, if the latter continue to exert its influence over the patient, this circumstance may arise from the accumulation of crudities in the alimentary canal, and which ought, without delay, to be removed by cooling laxatives. These will prove no impediment to the suppurative process, but rather tend to promote it by abating and suppressing the fever. If, nevertheless, with the utmost precaution in the cure of wounds, the purulent discharge should take its course towards the interior parts, or enter the circulation of the blood (an event which often suddenly occurs), the inevitable consequence will be a hectic fever. Sir JOHN PRINGLE therefore, observes, that such an alarming effect generally follows the timid use of the knife; that is, when the incisions have either not been made sufficiently deep, or when they cannot be attempted, as is the case in gun-shot wounds.

Foreign bodies, such as iron, lead, splinters of wood, glass, linen, &c. should, if possible be speedily extracted from wounded parts; and, in all serious accidents of this nature, surgical aid ought to be procured without delay.—CARVER observes, that the skin annually dropped by serpents, though perfectly dry, forms an admirable remedy for drawing thorns, splinters of bones, wood, &c. from the parts thus injured; of which remedy, however, we cannot speak from experience. When the wound is not inflamed, such extraction may be promoted by enlarging its orifice with a proper instrument; afterwards immersing the limb in tepid water, or repeatedly applying to it a cloth soaked in a similar fluid. But, if any pointed bodies, for instance, pieces of glass, cannot be thus removed, the wounded part should be exposed to the stream of water, and frequent emollient cataplasms be laid over it, with a view to facilitate the ejection of hurtful matters, by means of a speedy suppuration. As soon as the tumour thus treated becomes soft, and presents a yellowish-white spot in its centre, it must be opened; though such favourable change sometimes requires an attentive treatment, for several weeks.

Wounds inflicted by blunt instruments, or by the grazing of a bullet, or by the large and blunt teeth of animals, provided they be not poisonous, should also be treated in the manner already stated; though it will, in these cases, be useful to apply a pad of folded linen, moistened with sweet-oil, or with a tepid mixture of vinegar and water; because such wounds partake of the nature of bruises. With a view to afford greater security, the parts thus bitten, may preferably be washed with milk, or with lukewarm vinegar and water. LANGE, a German surgeon, asserts, that one dram of the pulverized seed of water-hemlock, taken every morning on a piece of bread and butter, have not only healed malignant bites of animals, but also cured large and fetid ulcers, in an almost incredibly short space of time.

If the shin-bone be wounded, no oil or ungent must be applied; but the injured part should be dressed with a pad dipped in arquebusade or goulard-water, or vinegar; either of which ought to be occasionally dropped on the linen, and thus suffered to remain undisturbed, in order to exclude the air, and to prevent suppuration. If, nevertheless, inflammation be apprehended, the patient may use, internally, a julep, composed of one pint of water, in which two drams of nitre are previously dissolved, and afterwards eight ounces of the tincture of roses, four ounces of the syrup of pale roses, and twenty drops of vitriolic acid, are successively added; of this mixture he may take two table spoonfuls every second hour, or oftener; and its operation ought to be supported by cooling purgatives, such as cream of tartar, or any neutral salts.—According to Faudiguiere, the honey-plaster above mentioned, or the tinder obtained from burnt paper, when applied to a fresh wound, and allowed to remain on the part affected, till it spontaneously fall off, has often proved a very efficacious remedy.

There are many instances on medical record, where small wounds of the veins, in consequence of unskilful blood-letting, have been attended with fatal effects: thus, if a tendon, or cutaneous nerve be injured, or the orifice in venesection be made too small, the whole arm or leg will become inflamed, and the swelling suddenly spread to the points of the fingers or toes. In these cases, the whole limb ought to be speedily tied up with a proper bandage, and dressed with goulard or arquebusade-water; and Brambilla recommends emollient, anodyne, and antispasmodic remedies to be applied to the wounded part. There are, however, instances, where the method before suggested, would be insufficient to effect a cure. Foubert asserts, that an inflamed arm, in conequence of an injured nerve, by venesection, was successfully treated "first with corrosive (sceptic) applications to the part affected, and afterwards with bread poultices, containing goulard-water," on the suggestion of ALIX.—The celebrated Heister recommends a mixture of oil of turpentine and spirit of wine to be applied to such wounded nerves; others advise warm spirituous liquors; and Sherwen justly praises the efficacy of the warm oil of turpentine, which is used by country people, in deep wounds inflicted by a needle, or other pointed instrument, with a view to prevent suppuration: and he observes, that cooling and emollient external remedies are unavailing in those nervous casualities, consequent on blood-letting.

Persons wounded by gun-powder, especially in the face, should not attempt to extact such particles of the powder as may have penetrated through the skin; because they are apt to break, and sink deeper into the muscular fibres; the only application necessary on these occasions, is goulard-water, or, more effectually, an ointment composed of oil and lime-water.

With respect to gun-shot wounds, we shall only remark that, according to the experience of the ablest surgeons on the Continent, such injuries are always more speedily healed with oil and emollient cataplasms, than with essences, balsams, and other heating drugs.

Bathing.

It was judiciously observed by Dr. Mead, that when a remedy is used indiscriminately, it must of necessity be very frequently used improperly. This observation cannot perhaps be more justly applied than to Bathing; as it is now well ascertained, that either the cold or warm-bath may be very beneficial to some, and extremely injurious to others, according to the nature of their complaints and constitutions. Heat and cold, therefore, are neither strengthening nor debilitating in themselves, but become so merely in consequence of certain states of the body, at the time of their application. The same thing which in a strong person produces increase of strength, may tend immediately to debilitate the feeble; and a remedy which used with moderation, is a stimulant, becomes rapidly destructive to vital power in an excessive dose. These observations are, it must be confessed, trite truisms, and as such are known and acknowledged by most intelligent persons; but nevertheless it is of importance that they be brought immediately before the reader here: for although they are known, it is yet to be feared that, in numerous instances relative to health, and more especially to bathing, they are not acted upon.

Every one knows that the human body has a temperature uniformly above the atmosphere in our ordinary seasons: it admits of but a slight occasional alteration, and is nearly the same in the equatorial and polar regions. Under the ordinary circumstances of health, the heat of the body indicates 98 degrees of Fahrenheit's thermometer; it is seldom materially reduced, even by sickness; but in some fevers it rises as high as 109: these alterations are unnatural, and are attended with a great waste of strength. The uniformity of temperature is sustained entirely by the vital powers, and the process appears to be carried on without the least expenditure of strength, when the atmospheric air indicates 60 degrees: every material deviation from this point, whether of heat or cold, if long continued, affects the constitution, and produces relaxation or disease proportionate to the extent and duration of the cause. So that in this sense heat and cold are directly debilitating powers to the human body.

If the body has been for some time exposed to a high degree of heat, the action of the blood-vessels is increased, and the blood itself preserves its own temperature by 98 degrees, by the evaporation of perspired fluids, both by the skin as well as by the lungs. Such expenditure, however, rapidly debilitates, and a bath at 60 degrees would be termed tonic, under such circumstances, by abating the excess of heat

If the same peron had been long exposed to a temperature below the freezing point, the power of life would be equally excited in keeping up the 98 degrees, but in a different way; and there would follow an equal waste, and an equal debility: the same bath would then prove tonic, by arresting such exertion of the vital powers, and giving the constitution time to regain its wasted strength,—accordingly the temperature of snow is sufficient for stimulating or exciting the healthy action of frost-bitten limbs. To a person chilled by the ordinary temperature of our wintry rains, and more especially if of a weak habit, this same bath of 60 would, under these circumstances, still farther debilitate; in such a case, a tepid bath only would be tonic, by its direct stimulus.

In very feeble persons who are not equal to support the expense of vital power, necessary for preserving the natural heat during winter, who are subject to cold fits, and generally chilliness, the warm bath is tonic by an artificial supply of heat. If, however, the same person indulge too long in this luxury, he acquires a quantity of superfluous heat, which generally increases perspiration, and thus exhausts the strength. To such persons, and in such a way, the warm bath is debilitating.

The propriety, therefore, of bathing, and the mode of bath which may be admissible, are matters of no trifling moment; and should never, in disease at least, be adopted without due consideration, or perhaps, medical advice.

The Cold Bath.—In using the cold bath, it is of essential importance to know that there is no truth in the vulgar opinion, that it is safer to enter the water when the body is cool, and that persons heated by exercise and beginning to perspire should wait till they are perfectly cooled. By plunging into it in this state, an alarming and dangerous chilliness is frequently felt, and the injury sustained is generally ascribed to plunging into the bath too warm; whereas it generally arises from the opposite extreme. In short, it is a rule liable to no exception, that moderate exercise ought always to precede cold bathing: for neither previous rest nor exercise to a violent degree, are proper on this occasion.

The duration of every cold bathing, applied to the whole body, ought, however, to be short, and must be determined by the bodily constitution, and the sensations of the individual; for healthy persons may continue in much longer than valetudinarians; and both will be influenced by the temperature of the air; so that in summer it may be enjoyed for an hour, when in spring or autumn, one or two minutes may be sufficient. Under similar circumstances, cold water acts on aged and lean persons with more violence, than on the young and corpulent; hence the former, even in the hottest days of summer, can seldom remain in the bath longer than a quarter of an hour; while the latter are generally able to sustain its impressions for a much longer period.

The head should first come in contact with the water, either by immersion, by being showered upon, or by covering it for a moment with a wet cloth, and then plunging head foremost into the water.

As the immersion will be less felt when it is effected suddenly, and as it is of consequence that the first impression should be uniform over the body, the bath ought not to be entered slowly or timorously, but with a degree of boldness. A contrary method in some constitutions is dangerous, as it propels the blood from the lower to the upper parts of the body, and thus predisposes to a fit of apoplexy. For these reasons the shower bath is attended with considerable advantages, because it transmits the water quickly over the whole body, and consequently is more consistent with the rules before mentioned

The morning is the proper time for using the cold bath, unless it be in a river; in which case the afternoon, or from one to two hours before sun-set will be more eligible. On the whole, one hour after a light breakfast, or two hours before, or four hours after dinner, are the best periods of the day for this purpose.

While the bather is in the water, he should not remain inactive, but apply brisk and general friction, and move his arms and legs, to promote the circulation of the fluids from the heart to the extremities. It should not be forgotten that it is extremely imprudent to remain in the water till a second chilliness attacks the body.

Immediately after leaving the bath, it is necessary that the bather, with the assistance of another person for dispatch, should wipe his body dry with a coarse clean cloth. He should not afterwards sit inactive, or enter a carriage, unless warmly clad, and wearing flannel next the skin; if season and circumstance permit, it will be more proper, and highly beneficial, to take gentle exercise till the usual circulation, and the customary action of the muscles be restored.

The best place for cold bathing is the sea, or a clear river: and where neither of these can be conveniently had, we recommend the shower bath.

The principal advantages to be expected from cold bathing in a medical point of view, are either the reduction of excessive heat, or the production of a salutary reaction of the system. In the former it has been found useful in several fevers, where the temperature of the body is increased above the natural standard; but affusion in those cases is more advisable, and more efficacious in reducing the morbid temperature than immersion; this practice will of course require considerable judgment and attention, and will depend upon the following circumstances. In fevers, the cold affusion must not be employed in the cold stage. As soon as the hot fit is formed, the cold affusion is to be used immediately, and repeated occasionally. In the sweating stage it is to be cautiously avoided.

The fevers in which this practice has been adopted with advantage, are typhus, intermittents, and scarlatina.

The cold bath is also said to have cured tetanus, or locked jaw; epilepsy, hydrophobia, and insanity. But however, we do not believe that in these cases it can be implicitly relied on. In nervous diseases too, the cold bath has sometimes been of service

In gouty and rheumatic complaints, in diseases of the hip and joint, lumbago, or sciatica, after the removal of these complaints by the use of vapour or hot bath, and in conjunction with other remedies, the alternation of the cold with the vapour bath, fortifies the constitution against a return of such attacks. In gouty inflammation, the application of cold water has been much recommended by Dr. Kinglake, a physician of undoubted talents, but it is, notwithstanding, by no means generally adopted, it should be made use of with great caution, if at all.

The cold bath is injurious when the powers of life are very considerably reduced, and the heat of the body below the natural standard. In general plethora, or a fulness of the vessels, and in inflammatory diseases of the more important viscera, such as the heart, the lungs, the liver, &c. the cold bath is esteemed injurious, however high the feverish heat which accompanies such diseases may be raised. The unconquerable dread which cold bathing sometimes inspires, and which no effort of the mind can overcome, forbids the use of it. Numbers of invalids, delicate females, puny, rickety, and young children, who crowd the watering places in the bathing season, are materially injured by the unadvised and injudicious use of this powerful application.

Sea-Bathing has frequently received the credit of a cure which was entirely owing to the change of air; and many times unsuspectedly, the gradual and permanent application of the cold bath, has laid the foundation of many chronic diseases. Its utility in scrofula, and glandular swellings of the neck is very doubtful. The injurious tendency of sea-bathing, where the patient's vital powers are so deficient that re-action does not follow the immersion, admits of no question. The use, however, of the tepid salt-water bath, or indeed of sea-bathing itself, when the water is warm, (*i. e.*) between 60 and 80 degrees of heat, is in many cases beneficial, when a colder temperature would be decidedly injurious.

It may be satisfactory to know, that in situations distant from the shore, where sea-water cannot be had, artificial sea-water, made by dissolving a pound of bay salt in four gallons of fresh water, possesses all the properties of the water of the sea, a small portion of sulphate of magnesia excepted.

The Shower-Bath—The cold shower-bath is less alarming to nervous pesons, and less liable to produce cramps, than cold immersion: it may be considered as the best and safest mode of cold-bathing, and is recommended in some nervous complaints with good effects.

It has afforded relief in some cases of insanity: whilst the cold shower was pouring upon the patient's head, the whole body was immersed in a warm bath.

The Cold-Bath is that in which the water exceeds the temperature of 65 degrees, and till it arrives at 85. A bath of this temperature is seldom employed, except preparatory to the cold-bath. The best preparation for cold-bathing, is to begin with a warm, then a tepid, and afterwards a cool-bath: after this course, the bather may in general plunge with safety into the cold-bath. In most cases a bath every second day from the commencement of the warm-bathing, to the end of a fortnight, will be sufficiently frequent; afterwards the cold immersion may be continued daily; but the bather should never remain above two or three minutes in the water.

The Tepid-Bath.—On immersing the body in a tepid bath, which takes it range from 85 to 95 degrees, no striking sensation either of heat or cold is felt. The sensation of heat or cold, which a person may feel on immersion in water, will depend upon the heat or cold to which the body had been previously exposed, or on the actual degree of heat at which the body is; thus a person much chilled, will, on entering the tepid-bath, feel the water warm, while another who has been heated by exercise, will find it sensibly cold.

The tepid-bath is attended with several advantages: the surface of the skin is by it freed from that scaly matter, which always collects more or less in the healthiest person; the pores of the skin being thus free, the natural perspiration is promoted, the limbs are rendered supple, and any stiffness which may have been produced by exertion or fatigue is removed. Such immersion has been found to allay thirst; a proof that a quantity of water is absorbed, and enters the body through the skin.

The tepid-bath seems the best adapted to the purposes of cleanliness, and healthy exercise. To delicate females, and young chidren, it is of primary importance. Nothing can be more absurd than the common practice of mothers and nurses in washing children, no matter how sickly or unwell, with cold water, under the idea of bracing the constitution: whereas, the tepid-bath, or even the use of tepid water alone, is not only the most agreeable, but the most proper fluid to excite the energies of the system in in young children.

That a due attention to a strict purity of person is of the utmost importance, cannot be denied. When the matter thrown out upon the surface of the skin is suffered to acccumulate, perspiration is obstructed, and this matter is, with justice, supposed to give rise to a variety of cutaneous and other disorders, which may be prevented, as they are now known to be cured, by bathing in simple warm water. We therefore cannot too strongly recommend the tepid bath.

Affusion with tepid water has generally the same result, except, that if the body continue exposed to the air after the affusion, a sensation of cold is produced, which ought to be avoided, by wiping dry the upper part of the body when rising out of the bath, whilst the lower extremities are still covered with the water.

The tepid affusion is applicable to all the diseases to which the cold affusion may be applied, and is generally preferred when there is doubt of the strength being sufficient to produce the re-action, (i. e. the glow of heat experienced after the cold immersion.) It possesses very considerable efficacy; it is safe, easy of application, in a high degree grateful and may be extended to almost the whole class of febrile diseases.

The use of tepid bathing for infants has been already mentioned; the advantages of this bathing to pregnancy, are confined to lightening the load of gestation, but extend even to the very hour of delivery. The great tension of the body from the increasing bulk of the fœtus is prevented, the bowels are preserved in a free state; and above all, a pliability of fibre is created, which diminishes resistance, lessens the pain, and shortens the period of actual parturition, and by these means, secures from danger the objects of our tendernes in the most interesting moments of their lives.

During the period of puberty, which with females is usually completed in about two years, sea-bathing should be avoided, but the tepid bath may, at this time, be used with great advantage.

There can be little doubt that human existence by tepid bathing, temperance, and proper exercise, may be made more agreeable, and also be prolonged.

The Warm-Bath.—On entering a bath from 95 to 98 degrees an agreeable sensation is experienced, and this sensation is more striking in proportion as the body has been previously cooled. The frequency of the pulse is always decreased, insomuch that a natural pulse has, after immersion for one hour and a half, been reduced nearly twenty strokes in a minute; the animal heat is also in most cases diminished; the absolute weight of the body after immersion, is found to be increased, notwithstanding the perspiration which commonly takes place. The patient feels languid, and a desire to repose, although the spirits are exhilarated, and any previous irritability allayed.

It has been generally thought, that one constant effect of the warm bath is to relax and debilitate the body, but this idea is now admitted to be founded in mistake. Some particular constitutions may be so affected, but this has been attributed either to the heat of the bath having been too great for them, or the immersion having been continued for too long a time.

At Bath many of the guides remain for several hours every morning nearly up to the neck in the warm bath, without being either relaxed or weakened, by it, but on the contray, they are, in general, a robust, vigorous, and long-lived race of persons.

When the warm bath is intended to produce increased perspiration, it is best employed in the evening, when the immersion should not exceed ten minutes, and the patient should be removed from the bath to a warm bed. When it is not intended to excite perspiration, any time, from an hour after breakfast till dinner will be proper: in these cases the bathing may be protracted to fifteen or twenty minutes, according to the feelings of the patient; gentle exercise in the open air should be afterwards employed. It is an error to suppose that persons who have been immersed in the warm bath, are more liable afterwards to take cold: for the body is better able to resist the action of cold immediately after coming out of a warm bath than perhaps in any other given situation.

The warm-bath, besides its use as an ablution, has been beneficial in St. Vitus's dance, strangulated Hernia, Tetanus, the Influenza, diseases of the skin, &c. &c.

The Warm Medicated or Sulphur Bath.—When this is employed it is generally supposed that the impregnating matters produce on the system effects similar to those which would follow the internal exhibition; that in some instances this is the case, cannot be denied; but in most cases the effect is very trifling. Immersion in a sulphureous warm bath commonly produces an increased perspiration; and a similar use of a chalybeate bath, especially if it contain any aluminous impregnation, is followed by a corrugation of the skin, and an increased action of the vessels. These can be readily explained; but it is not easy to conceive how alkaline, or earthy salts, should produce any remarkable effect: for it is not known that they can enter the system by the pores of the skin; indeed, that they are not absorbed is evident from the circumstance, that even sea-water will allay thirst, merely by wetting the surface of the body with it: it is, therefore, reasonable to conclude, that the advantages of sea-water over fresh, as a bath, have been much exagerated, and depend rather on irritation of the skin, than upon any absorption of the materials. It should not be forgotten also, that the warm salt-water bath has been found injurious in almost every species of cutaneous disorders, in consequence of the irritation produced by the particles of salt deposited on the skin.

This kind of bath has been found decidedly beneficial in many diseases of the skin, particularly in children, in surfeit, in elephantiasis, leprosy, &c.

The Hot-Bath is that which has a temperature of 98 or 100 degrees, and is occaionally increased to 110 or 120 and upwards, according to the particular nature of the case, and the constitution of the patient. No prudent person, however, should have recourse to a hot bath without medical advice.

The effects of the hot bath differ in several particulars from those of the warm bath. The sensation of heat experienced on entering a bath above 98 degrees, is, in general very striking and permanent. The pulse is increased in frequency and force; the superficial veins become turgid; the face is flushed; the respiration quicker than natural, and sometimes hurried and laborious; and the perspiration is increased. If the heat of the bath much exceed 98, or if the immersion be continued beyond a few minutes, the determination of blood to the head is greatly increased; the arteries of the neck and temples throb violently; a sensation of anxiety at the breast comes on threatening suffocation; the person grows gidddy and feels a fluttering at the heart. If these warnings of approaching danger be not attended to, the bather soon becomes insensible, and is carried off by apoplexy.

From the effects produced by the hot bath, it appears that this remedy is a powerful stimulant to be employed only in cases where the ordinary stimulants are ineffectual, accordingly it is seldom resorted to in medical practice; and almost the only cases in which the general hot bath is employed, are those of confirmed and obstinate palsy; but its use is now almost superceded, except at Bath and some other hot springs, by the vapour bath.

Water of this high temperature is scarcely ever employed by the way of affusion, nor is such an application likely to be attended with advantage, except in some paralytic affections of the limbs: in these cases it is not unusual at Bath, and other hot springs, to pump the hot water on the affected limb. By this dry pumping, as it is generally called, the hot water is applied to the affected parts, under a higher temperature than when it is drawn off into the reservoirs commonly employed for bathing.

The Vapour-Bath, used in this country, is simple in construction and effectual in its application. It is an apparatus to which the steam of boiling water, either simple or medicated, is conveyed through pipes from a common digester or steam-boiler, modelled from one invented by the honourable Basil Cochrane. In this apparatus the stimulant power of heat is modified and tempered by the moisture diffused through the air; and as the elastic vapour, like air, is a less powerful conductor of heat than a watery fluid, the effect of vapour in raising the temperature of the body is much less than that of the hot bath. Its heating effects are also further diminished by the copious perspiration which ensues; so that, on every account, the vapour-bath is safer, it being, in most cases, more effectual than the hot-water bath, and may be employed with success where the hot bath would be attended with danger. It may be applied also to the whole, or to any part of the body. To effectuate this, the steam is conveyed from the digester, or steam-pot, through a leaden tube into a waggon-roof frame, which may be made of hoops of whalebone, wood, or cane, forming a cradle, resembling that used by surgeons to keep the weight of the bed clothes from pressing on fractured limbs, which is laid over the patient in bed, precisely as the cradle over the fratured limb, under a blanket, or other covering, to confine the steam.

The vapour bath has been lately strongly recommended in all cases of fever, where a determination to the skin is particularly desirable. The more general and immediate effects of this bath in fever is, that it disposes to a calm and sound sleep, and regulates the discharge by the skin: the increase of the symptoms, sooner or later in the evening, is lessened, if not prevented; the head is preserved from delirium, and the symptoms are moderated till the disease terminates. It has been also found beneficial in inflammation of the bowels, complaints of the liver, hydrocephalus, dropsy, glandular swellings of the neck, calculous complaints, gout, leprosy, white swelling, strangulated hernia, several affections of the skin, &c.

The temperature necessary for the vapour-bath, and the time for using and remaining in it, must depend upon the purpose for which it is designed. From ten minutes to a quarter of an hour is, in general, sufficient; but there may be cases where half an hour or even an hour may be necessary; the temperature from 110 to 120.

The best time for using this bath is in the morning, or at any period before dinner; after the body has been properly dried and rubbed, the cool air is grateful and perfectly safe; there is no danger whatever from cold: we are less liable to take cold after warm and vapour bathing than at any other time. It must not be concluded, however, that immediate exposure to external air, in all circumstances, after warm or vapour bathing, is safe: there are exceptions in several states of diseases, where the object is to ensure and increase perspiration. In such cases it is obviously our business to remove the patient to bed. But when the bath is used for cleanliness, refreshment, or as a luxury, the rule admits of no exception.

We will here recapitulate, for the advantage of our readers, our directions on the important subject of bathing generally:

Whenever the cold bath is deemed proper, the warm, tepid, and cold bath, should be first used as a preparative; the patient should remain in, the first and second time, for ten minutes, and only immerse the body for a minute or two, when he proceeds to use the cold bath. The bather should always go into the cold bath when warm, and seldom exceed one plunge; which produces a glowing and healthful appearance, and an additional flow of spirits; when these are not produced, the cold bath should not be repeated. In some cases, attended with a fulness of habit, it may be necessary to bleed, or take a dose of medicine, previously to the use of the bath. In hysteria, epilepsy, insanity, hydrophobia, and other convulsive disorders, the cold bath has been used with advantage; but in these complaints it should be used during the paroxysm.

In all disorders affecting the head with pain, giddiness, sense of fulness, hydrocephalus, and deafness; in all diseases of the breast, in asthma, catarrh, water on the chest, and every species of consumption, in indigestion, (dyspepsia) chronic pains in the stomach and bowels, in all internal inflammations,—of the liver, spleen, kidneys, intestines, &c. In gout, rheumatism, diseases of the joints, scrofula, glandular swellings, in every kind of dropsy, and in all eruptive and cutaneous diseases, in early infancy, in every period of pregnancy, and in advanced life, the cold bath is injurious.

On the other hand, the warm and vapour bath properly regulated, will be found principal agents in the cure of most of the foregoing disorders; in eruptions of every kind; œdematus swellings of the limbs, in stiffness, and contractions of the joints; in all those disorders called nervous; in every case requiring a course of mercury; in early infancy, in the latter period of pregnancy, and in the decline of life to the last stage of existence, the warm and vapour bath may be used with advantage and safety. In a plethoric state of the body, or where there is much determination to the head, previously to the use of the warm or vapour bath, steps must be taken to remove the plethora, or to relieve the head.

It now only remains to make a few observations relative to public bathing. Floating baths are stationed in different parts of the river Thames, to accommodate those persons of the metropolis who may be desirous of bathing; but the trouble and inconvenience of proceeding to them, prevents their being used to any great extent: a common practice with many of the youths of London is to hire a boat, and the waterman attends them wherever they go; but it is obvious that such bathing is dangerous, and can only be adopted by persons who can swim. A more common, but a more disgusting method, is to bathe in the New River; here, in the summer, in the neighbourhood of Islington and Newington Green, great numbers plunge daily into the aqueduct, to the great annoyance of the passengers on its banks, and to the disgrace of the New River Company, who permit such ablution in a stream from which such a large portion of the metropolis obtains that fluid so useful, nay, so essential to life. Surely if such indecencies cannot he prevented, it would be deserving the attention of the first metropolis in the world, to provide a canal, or stream for the bathing of its inhabitants, where no decency would be shocked, and where a moderate depth may secure against accidents from drowning, and where also a constant change of the water may be effected, so as to make this exercise, and mode of ablution, both pleasant, salubrious, and safe.

From what has been said it is evident that all stagnant water must be improper for bathing: it should be either that of a river, a running stream, or the sea. Or, if it be that of a bath in a private house, the water should be changed every day. No lead ought, by any means, to form the lining of a bath.

Cholera Morbus.

This disease, which of late years has been common in this country, shows itself by excessive vomiting, and purging of bilious matter, with violent pain, inflation, and distention of the belly. Sometimes the patients fall into universal convulsions; and sometimes they are affected with violent spasms in particular parts of the body. There is a great thirst, a small and unequal pulse, cold sweats, fainting, coldness of the extremities, and hiccough; and death frequently ensues in twenty-four hours.

Those who have been rendered weak, or irritable, by a hot, or long-continued summer, or by living in a warm climate, or in putrid vapour, are peculiarly liable to this disease.

It is produced by a cold, by a putrid vapour, or arises as a partial evacuation in fever or from purging, if it has continued long, or happened in a habit predisposed; or it begins with phlegmonous inflammation of the intestines.

In this disease, as much bile is in the alimentary canal, particularly in the stomach, the first object is to encounter its influence, and to promote an easy discharge of it. It will be, therefore, necessary to give the patient a large quantity of warm water, or very weak broth, in order to cleanse the stomach, and also to inject the same by way of clyster, till the pains begin to abate a little. After this, a large dose of opium is to be given in some convenient vehicle, and repeated as there is occasion. But if the vomiting and purging have continued for a long time before any remedies have been given, immediate recourse must be had to opium, or rather laudanum, because the patient will be too much exhausted to bear any further evacuations. Sometimes the propensity to vomit is so strong that nothing will be retained, and the laudanum itself thrown up as soon as swallowed. If this should be the case, a strong decoction of oat-bread, toasted as brown as coffee, has been recommended. An infusion of mint leaves, or good simple mint-water, is also said to be very efficacious in the same case. But, however, we believe, that a tea-cupful of strong beef-tea, taken cold occasionally, will be found superior to all those medicaments, and even should the first tea-cup-ful be thrown up, the like dose may be repeated in the course of a quarter of an hour, when it will most probably remain: where, however, inflammation is present, beef-tea must not be taken, as, by it, the inflammatory symptoms will be increased.

After the violence of the disease is overcome, the vegetable bitters, such as columbo-root, a strong infusion of chamomile flowers, &c. may be taken with good effect; and care must be taken to avoid every kind of flatulent food: the intestines, if not naturally open, must be kept rather so, by some gentle laxatives, such as rhubarb, &c.

Drink.

Drink is the liquid which we take to quench thirst, and, of course, to support the bodily functions.

The fluid necessary to be taken for the preservation of good health, has been calculated at double the quantity of solid provisions which we daily consume. But this proportion is frequently exceeded, sometimes from the solicitations of nature, although more commonly to gratify the cravings of a vitiated palate. In the summer season, as we all know, the body requires more liquid aliment than in the colder seasons of the year: and for simply quenching the thirst, nothing equals pure water, care, however, being taken not to drink it cold when the body is unduly heated.

Persons, whose appetite is not depraved by irregular living, may easily regulate their drink to that of dry aliment: for with them thirst will be the safest guide. But those individuals who have unfortunately become the slaves of Bacchus, are generally deprived of this beneficent instinct.

If the moral sense be so far lost in the habitual votary of dissipation, that he is no longer deterred from the gross vice of intoxication, yet he ought to know that his bodily functions will sooner or later convince him of his error, and that he cannot *live fast* without at length suffering various lingering diseases, and distressing mental maladies, for which he will, it is to be feared, seek in vain for a cure.

Large potations of fermented liquors, are at no time advisable; and least of all so to those whose exercise is not of the most active and laborious kind.

Drinking cold water or cold liquors of any kind in warm weather, or when heated by exercise, or otherwise, may be productive of fatal effects: to guard against which, avoid drinking while warm, or drink only a small quantity at once, and let it remain a short time in the mouth before swallowing it; or wash the hands and face, and rinse the mouth with cold water before drinking. If these precautions have been neglected, and the disorder incident to drinking cold water has been produced, the first, and in most instances the only remedy to be administered, is sixty drops of liquid laudanum in spirit, or water, or warm drink of any kind. If this should fail of giving relief, the same quantity may be given twenty minutes afterwards.

When laudanum cannot be obtained, rum and water, or warm water should be given.

Vomiting, or bleeding should not be had recourse to without consulting a physician.

Half an ounce of camphor, dissolved in a gill of brandy, and given in three parts at intervals of three or four minutes each, has been given with success by Dr. A. White, of New York, as a remedy for the alarming symptoms which sometimes occur in drinking cold water when in a state of perspiration. Of this we can only say, that it is a very powerful medicine, and that nothing but the utmost extremity ought to induce us to have recourse to it.

Dyspepsia, or bad Digestion.

Dyspepsia has been defined a want of appetite, accompanied by nausea, vomiting, flatulence, heartburn, costiveness, and pain in the stomach, with other symptoms of of debility in that organ. But bad digestion is a much better definition of it; for dyspepsia frequently exists when the appetite for food is good. In which case it is evinced by the disturbance which arises in the stomach, and sometimes also in the bowels, sooner or later, after the food is taken. Thus many persons have a desire for, and frequently eat hot rolls with butter for breakfast, and experience in the course of an hour or more afterwards, an unpleasant ascidity rising into the mouth, which is a sure indication that the stomach labours under disease: in other words, digests the food badly.

Dyspepsia is a symptom of a great variety of diseases; indeed, it is generally an attendant on almost all diseases of debility. Thus it is conspicuous in the ague, chlorosis, dropsy, jaundice, asthma, hypochondriasis, &c. It may be, and probably sometimes is, a primary disease of the stomach itself, but it more frequently arises from some general disease.

One of the most common causes of dyspepsia, but too often overlooked by the physician, is excessive sensibility; and this sensibility is, unquestionably, considerably fostered and promoted, by that literary education which, in this country, has become so common, so fashionable, and we may add so fascinating. To the female sex in particular, this is productive of considerable mischief: as it not only increases their sensibilities, but the sedentary occupation of reading itself, tends directly to induce dyspeptic complaints. By these observations, however, we do not mean to undervalue the importance of literature; on the contrary, we admit that literature adorns and ennobles man; but it is its excess of which we complain.

Exercise, and its all-powerful nature, may be insisted upon as a cure for dyspepsia in almost all its stages, and in almost all diseases which it attends, and in which exercise can be borne. Nor must the dyspeptic patient of literary habits, and excessive sensibility, be exempt of this powerful prophylactic. We use the term exercise, but perhaps labour conveys a more suitable meaning. Labour, then, bodily, personal labour, or the moving of the body and muscles in a variety of directions, lifting weights, carrying burthens, riding, walking, digging in the garden, ascending steep hills, all contribute, when properly adapted to the patient, to remove this unpleasant, and in Great Britain, we fear, increasing disease.

Diseases and Treatment of Infants and Children.

The diseases of infants and children, except such as are contagious, or epidemic, may in general be referred to the mismanagement of those who have the care of them. Healthy women, will naturally bring forth healthy children, unless they are inattentive to themselves during pregnancy ; the vigour, therefore, of the constitution of the child will, in a great measure, depend upon the constitution of the mother.

From the peculiar circumstances in which mothers are placed with respect to their children, they have advantages relative to a knowledge of the probable cause of sickness and mortality of their children, which no other person can possibly possess. The prevention of disease is therefore an object deserving their peculiar care. Indeed, there are few mothers in the well-informed classes of society, who are not competent to assume the office of physician to their own offspring in numerous instances, and especially in all those rapid fluctuations of health so peculiar to infancy and to childhood. The study of the diseases of infants ought to form a part of the education of every female, or at least every female who is likely to become a mother. The first sensations of infants are necessarily those of mere pleasure and pain ; when of the former they enjoy them in silence;

when of the latter, they express them in their own language, that is, by crying, and demand relief; and it should be indelibly impressed upon the mind of both mother and nurse, that infants seldom, if ever, cry unless they suffer some inconvenience or pain: whenever, therefore, infants cry, the cause of their crying should be at once diligently sought for; if it does not require food, its clothes may incommode it, if it has been kept or lain too long in one position, or it requires rest, &c. Nothing is more absurd than dosing the infant with medicine of any kind immediately on its entrance into the world; it is of importance to know that in this early stage of infancy, drugs are wholly unnecessary, and often very improper. The first milk of the mother, which the child should be placed at the breast to obtain as soon as she has recovered by rest from the immediate fatigue of her labour, or a little thin gruel, with a small quantity of soft sugar; being all that is necessary to promote those evacuations which nature herself in general, most faithfully ejects. The early application of the infant to the breast will besides cause the milk to be much sooner supplied, and more certainly prevent puerperal fever, and inflammations of the breast, than any other method that can be adopted.

The health of women, while suckling their infants is, in general, better than at any other period of their lives. But should, from any cause whatever, their functions be disturbed, the quantity or quality of their milk, or both, will be often very materially affected. The quality of the food and drink taken by the mother will also very materially affect her child; so also will medicine. Thus if a nurse eat garlic, her milk will become impregnated with it, and disagreeable. If she indulge too freely in wine or porter, the infant will become sick; and if a nurse take jalap, or any other opening medicine, the infant will be purged; and such as are affected with gripes, or pains in the bowels, are often cured by giving the nurse a larger proportion of animal food. The milk of a suckling woman may also be altered by the affections of the mind, such as anger, fear, grief, or anxiety. In mothers as well as nurses, a good temper and an even mind are grand requisites in promoting the health of the child. The food of nurses should not be different from their ordinary food; but they, in general, eat and drink considerably more, and with greater relish, than at other times, which, of course, should not be denied to them.

During the first month, the infant should, if possible, receive its nourishment from its mother's breast, not only as being beneficial to the infant, but also, by its discharge, to the mother herself. If, however, from peculiar circumstances, the mother cannot suckle her own child, a young woman should be chosen to do so whose milk is nearly of the same age as that of the mother. But no trifling consideration ought to induce any mother to abandon her offspring to be suckled by another, provided she has health and strength to do it herself.

An infant should be early accustomed to feeding, as it will thereby suffer less inconvenience on being weaned. It should be fed two or three times a day, and, if not suckled during the night, which some medical writers think is not necessary, it may require feeding once or twice during that period. We cannot, however, avoid remarking, that suckling during the night, at least, for the first two or three months, is preferable to feeding. An infant in health, and which has been brought to feed regularly may be safely, and is best weaned at seven or eight months. It should seldom, if ever, be suckled more than ten. The period of weaning, however, must be regulated according to the strength of the mother, as well as that of the infant. It should never be taken from the breast, if possible, before the end of the fourth month.

Should an infant, by accidental, or other circumstances, be deprived of its food from the breast of its mother, or nurse, a substitute for it must be supplied, and the closer we can imitate nature the better. For this purpose, a sucking bottle should be procured, the mouth of which should be as wide as that of an eight-ounce phial, which is to be stopped with sponge covered with gauze, and made in size and shape to resemble a nipple. The following preparation is most suitable, as it comes nearest to the mother's milk, and may be sucked through the sponge

On a small quantity of a crumb of bread, pour some boiling water; after soaking for about ten minutes, press it and throw away the water: the bread, by this process being purified from alum, or other saline substances which it might contain; then boil it in as much soft water as will dissolve the bread, and make a decoction of the consistence of barley-water, to a sufficient quantity of this decoction, about a fifth part of fresh cow's milk is to be added, and sweetened with the best soft sugar.

After each feeding the bottle and sponge should be carefully rinsed with warm water.

As the infant advances in growth, the proportion of milk is to be increased, and that of the sugar lessened, until the stomach is able to digest simple bread and milk, Indian arrow-root, &c. In this way very fine children have been reared.

As the child grows up it will require food of a more solid nature: broths and soups are not so nutritious as solid animal food. But, however, a variety of food is best; and food for infants and children in health should be considerably more of a vegetable than an animal kind.

The utility of air and exercise for infants and children, cannot be too much insisted upon. The perpetual motions of children, which carry even the appearance of restlessness, are the best indications of that activity which nature, at such an age, imperiously demands.

Infants require a large proportion of sleep, in which they ought to be indulged: indeed, for some weeks after their birth, sleep and food appear to be almost the only things which they want.

Immersing infants daily in tepid or warm water, is conducive both to their growth and bodily strength; but the practice of plunging them into cold water, is highly improper, and should be avoided by every one who desires to see them lively, healthy and vigorous.

It may seem almost superfluous, in this enlightened age, to speak of the dress of infants: but, however, it is our duty to remark, that all tight bandages of every kind should be carefully avoided. The head should be lightly covered; and a roller about six or seven inches broad, and as elastic as possible, at the same time that it is soft and smooth, should form the principal envelope of the body. No pins of any kind should be used about an infant's dress. In the summer season infants need not wear stockings, but in cold weather they require them; they should be of wool. If very young children be carried abroad, they should of course, be shielded from the strong light, and cold air. At the same time it should be remembered, that keeping children too hot is as mischievous as the opposite extreme.

One of the most common diseases of children is *colic*, arising sometimes from the retention of the meconium, in very young children, but more usually from the milk of the mother being unsuitable for it, or from improper food. Various nostrums are given by nurses for this complaint. In general, however, the colic or gripes, as well as diarrhœa in children, if not of long continuance, will be best removed, when medicine is necessary, by a few grains of powdered rhubarb and magnesia, according to the age of the child: they may be mixed together in an ounce of pure water, sweetened with a little sugar, and given for one dose. If the diarrhœa manifestly weakens the child, small doses of white poppy syrup may be added to the chalk mixture, and given according to circumstances, a tea-spoon-full or more at a time. In the retention of the meconium, a tea-spoon-ful or more of castor-oil, is the best remedy.

The *red gum*, requires no medical treatment whatever; care must, however, be taken not to repel the eruption by exposing the child to cold, or by washing in cold water, &c.

The *white gum* and *tooth-rash* are of the same nature, and require no medical attention.

Children are sometimes affected with an *erysipelatious* affection of the navel and neighbouring parts. If it be severe, an emollient poultice should be applied to the part; or a rag dipped in camphorated spirit of wine may be applied to the navel, to be kept constantly moist; the surrounding inflammation should be simply powdered with fine starch every eight hours. The bowels should, in the mean time, be opened with caster-oil, or with small doses of rhubarb and calomel,

The *nettle-rash*, simply requires two or three doses of opening medicine, and the avoiding of cold, or any other repellents.

The *purples* principally attack the children of the poor. A decoction of bark, with acidulated drinks, pure air, and moderate exercise, with an occasional purgative, are the only remedies necessary.

The *itch*, in very strong children, may be generally cured by the nurse's paying attention to her own personal cleanliness, and by bathing the child daily in warm water. Should the complaint become inveterate, by inattention to this mode of cure, and the nurse herself be affected, she should sponge her body, and every part affected, daily, with a warm solution of the liver of sulphur, made by dissolving one drachm of this medicine in a quart of water. A table spoonful of the following mixture should also be taken by the nurse three times a day. Dissolve one ounce of Epsom salts in half a pint of peppermint-water, to which add a drachm of the dilute sulphuric acid, and two drachms of the compound spirit of lavender. The child should also be sponged with some of the sulphur solution, lowered with warm water to half the strength, and may take a tea-spoonful of the above mixture, twice or three times a day. This treatment will soon cure both the nurse and the child.

Scaly eruptions of the skin are sometimes very troublesome and difficult of cure. In this disease, the liver is occasionally affected; this is known by clay-colour evacuations· one scruple of antimonial powder, ten grains of calomel, and two scruples of rhubarb mixed together, divided into ten equal parts, one of which to be taken every night, using the steam bath, if convenient, every morning, promise the best cure.

The *dry tetter*, attacks principally the face, and may be removed when recent, by warm, fresh-water bathing; but when troublesome, the preceding powders should be taken, always remembering that cleanliness, in all the stages of this complaint, should be particularly attended to.

The *white blister*, *eating-hive*, or *burnt-holes*, appear for the most part behind the ears, but sometimes on other parts of the body. The blisters terminate in deep ulcers, with a copious discharge, and a rapid tendency to mortification. The parts affected should be bathed twice a day in warm water, and dressed with figwort ointment, and the bowels kept moderately open, by occasional doses of rhubarb and calomel. Should there be a tendency to mortification, the parts should be fomented with the steam of hot water, and a carrot poultice applied every eight hours, and a table-spoonful of the following mixture taken three or four times a day: Take of decoction of bark four ounces, dilute sulphuric acid, twenty drops; of syrup of orange-peel, half an ounce—mix. From a dessert to a table-spoonful may be given to a child from three to five years old, four or five times a day.

Almost all the diseases of the skin of infants, however different they may be, will, in the commencement, yield to a judicious and free use of warm water, and proper attention to cleanliness; in such cases we only second the operations of nature—the safest and best physician.

Convulsions are the concomitant of many complaints of the stomach and bowels; in curing them regard must of course be had to the primary disorder. They take place in eruptive fevers, hydrocephalus, and teething.

The *thrush* is a very common complaint of young children. It arises in general, from some acrimonious matter or derangement in the alimentary canal. The cure is effected by first emptying the stomach and bowels with the following medicine; Dissolve one ounce of manna, and two drachms of antimonial wine, in two ounces of water, give a table-spoonful of this mixture every two or three hours, till it vomits and purges. The best topical application is the following: Take of powdered borax and tincture of myrrh, of each one drachm; honey one ounce. Mix a little of it. It must be applied with a feather to the mouth, three or four times a day. During the cure, the bowels must be kept open with magnesia, or castor-oil; a gentle moisture should also be encouraged on the skin. This may be done by giving a little wine whey to the infant, or to the nurse, if the infant be at the breast. We give this method of cure, but the thrush often passes off without any medicine whatever, except, perhaps, a axative.

'The *croup*.—Calomel has, in some late cases of the croop in young children, been employed with great success. It should be given as soon as possible after the attack, in doses of two grains every four hours, until the severity of the complaint declines. At the same time, an ointment made of five grains of emetic tartar, five grains of powdered opium, and a drachm of spermeceti cerate, should be applied to the breast, until pustular eruptions are exited on the skin.

Infants and children are subject to *cough*, when the chest is not affected, proceeding from other causes, such as affections of the stomach and bowels, teething, worms, &c. which may be cured by removing the cause; but the common catarrhal may be removed, after opening the bowels with castor-oil, or other gentle purgatives, by giving two or three grains of antimonial powder at bed-time. A waistcoat of chamois leather, with sleeves to shield the child against cold, and to be worn next the skin, has been, sometimes, useful in affections of this kind. When the cough is troublesome, a tea-spoonful of the following mixture may be given: Take of simple syrup two ounces; of antimonial wine, and compound tincture of camphor, of each one drachm: tincture of tolu, twelve drops—mix. The diet should be chiefly vegetable. A little gum Arabic dissolved in the child's drink may assist in allaying the cough.

It is scarcely necessary to add, that in all violent and dangerous diseases of children, a medical practitioner ought to be consulted.

CHAP. XIII.

MISCELLANEOUS RECEIPTS.

To revive a Dull Fire.

Powdered nitre strewed on the fire, is the best bellows that can be used.

Small Pox.

In Dr. Lort's copy of "Mead *de Variolis*," was written, what was termed "A curious and infalliable preventative against ever catching the Small Pox," as follows:—

Two spoonfuls of red ochre, such as is used for marking sheep, infused in half a pint of ale, and taken seven mornings successively, fasting.

Corns and Warts.

Apply soft brown paper moistened with spittle. A few dressings will remove them.

To destroy Snails and Slugs.

A few turnips sliced and laid on the borders of the garden they infest, will attract them in the evening.

To prevent Paper from sinking.

If the paper used in superior editions of books, and which sinks so as to prevent its being written on, be dipped in alum-water, it may be written on. This practice was adopted by Peiresc

To change Hair to a deep Brown.

A solution of the silver caustic in water is the foundation of all the nostrums for this purpose. It must be well diluted before used.

Pearl White.

Bismuth dissolved in aquafortis is pearl white. This, though at first it whitens, afterwards blackens the skin, as all preparations from lead do; and therefore none of them are safely to be used.

To take off a Gold Ring sticking tight on a Finger.

Touch it with mercury, and it becomes so brittle that a slight blow with a hammer will break it.

To detect the mixture of Arsenic.

A solution of blue vitriol dropped into any liquid in which arsenic has been put will turn it green.

To try the purity of Spirits.

See if the liquor will burn away without leaving any moisture behind. As spirit is much lighter than water, place a hollow ivory ball in it; the deeper the ball sinks, the lighter the liquor, and consequently the more spirituous.

To destroy Grubs.

Cut a turf, and lay it with the grass downwards near the plant destroyed by the grub, and it will attract him

Against Burns and Scalds.

Plunge the part scalded into cold water as soon as possible. Wet it with linen steeped in rectified spirit or common brandy. Poultices and oily applications are to be avoided.

A Corn Plaster.

One ounce of naval pitch, half an ounce of galbanum, dissolved in vinegar, one scruple of ammonia, and one drachm and a half of diachylon, mixed together.

To discharge Grease from Leather.

The white of an egg applied to the spot, and dried in the sun; or, to two table spoonfuls of spirit of turpentine, add half an ounce of mealy potatoes, with some of the best Durham mustard. Apply this mixture to the spot, and rub it off when dry. A little vinegar added, revives, and is perhaps more efficacious.

To prevent Wounds from mortifying.

Sprinkle sugar on them. The Turks wash fresh wounds with wine, and sprinkle sugar on them. Obstinate ulcers may be cured with sugar dissoved in a strong decoction of walnut leaves.

Chapped or sore Lips

May be healed by the frequent application of honey-water, and protecting them from the influence of cold air.

Useful Knife-Board.

A common knife board, covered with thick buff-leather, on which are put emery, one part, crocus martis, three parts, in very fine powder, mixed into a thick paste with a little lard or sweet oil, and spread on the leather to the thickness of a shilling, gives a far superior edge and polish to knives; and will not wear the knife nearly so much as the common method of using brick-dust on a board.

To promote the Growth of Hair.

Mix equal parts of olive oil and spirits of rosemary, and add a few drops of oil of nutmeg. If the hair be rubbed every night with a little of this lineament, and the proportion be very gradually augmented, it will answer every purpose of increasing the growth of hair, much more effectually than can be attained by any of the boasting emperical preparations which are imposed on the credulous purchaser.

Prevention and cure of the Dry Rot.

Mr. Ralph Dodd has published practical observations on the dry rot and its prevention; and, as an engineer of much experience, his discovery merits notice. He describes the dry rot as a perfect fungus, which sends its fibrous roots into the timber, acting on it like hydraulic pumps, or leeches on the human frame, drawing out the fluidity, and rendering it friable, and as light as cork. Its ravages on ship-board appear to be as extensive as in buildings on shore. Warm climates are more favourable to it than cold ones. Ventilation of the timbers he considers the best preventive; but cure can only be effected by cutting away or removing the parts. He has also invented a powder, which, applied in solution to new timbers, secures them from this destructive disease.

To discharge Grease from Paper.

Burn bones of sheep; with the powder rub both sides of the spot; and, putting white pieces of paper on each side, lay the whole in a press. Repeat this process till the spot disappears.

Economical Use of Nutmeg.

If a person begin to grate a nutmeg at the stalk end, it will prove hollow throughout; whereas the same nutmeg, grated from the other end, would have proved sound and solid to the last. This circumstance may be thus accounted for:—The centre of a nutmeg consists of a number of fibres issuing from the stalk, and its continuation through the centre of the fruit, the other ends of which fibres, though closely surrounded and pressed by the fruit, do not adhere to it. When the stalk is grated away, those fibres having lost their hold, gradually drop out, and the nutmeg appears hollow: as more of the stalk is grated away, others drop out in successon, and the hollow continues through the whole nut. By beginning at the contrary end, the fibres above mentioned are grated off at their core end, with the surrounding fruit, and do not drop out and cause a hole.

To make Ginger Beer.

To every gallon of spring water, add one ounce of sliced white ginger, one pound of common loaf sugar, and two ounces of lemon juice, or three large table spoonfulls; boil it near an hour and take off the scum; then run it through a hair sieve into a tub, and when cool (viz. 70°)

add yeast in proportion of half a pint to nine galons; keep it in a temperate situation two days, during which it may be stirred six or eight times; then put it into a cask, which must be kept full, and the yeast taken off at the bung-hole with a spoon. In a fortnight add half a pint of fining (isinglass picked and steeped in beer) which will, if it has been properly fermented, clear it by ascent. The cask must be kept full, and the rising particles taken off at the bung-hole. When fine (which may be expected in twenty-four hours) bottle it, cork it well, and in summer it will be ripe, and fit to drink in a fortnight.

To ascertain the Quality of Nutmegs.

Oil of nutmegs being of great value, it is often extracted from the nuts which are exposed to sale, and which are thereby rendered of very little value. To ascertain the quality of nutmegs, force a pin into them; and if good, however dry they may appear, the oil will be seen oozing out all round the pin, from the compression occasioned in the surrounding parts.

To prevent Brass Vessels from contracting Verdigris after being used.

Instead of wiping them dry, it has been found, that by by constantly immersing them in water, they are kept perfectly innoxious, and will remain for years, fully as clean, and nearly as bright, as when they first came out of the hands of the workmen.

Mr. Weighton's opinion of the Blight and Canker in Fruit Trees, and the best Method to get rid of them.

The blight, in some seasons, is very destructive to fruit trees, both standards and on walls. The general opinion is at present, that it proceeds from cold dry winds; but I am of opinion that it proceeds from too much moisture, especially if the weather be cold at the time, hindering the perspiration of the moisture from the trees; for it is well known that all trees draw a large quantity of water from the ground and evaporate it into the air. I think there is no effectual remedy for this; but draining the ground, where too wet, may have some good effect.

The canker in fruit-trees may, in a great measure, be prevented by proper care. I always find that a cold wet soil, or wet gravel, has been a principal cause in bringing on the canker in many kinds of fruit trees, particularly the tender sort, and that a mossy bottom is the worst of any. A dry gravel is the best bottom for all fruit-trees. The wall-borders here (Melville in Fife,) are eighteen inches, of a light loam, upon dry gravel, and we have peach trees in a good bearing state, and free from cankers, that are supposed to have been planted ninety or a hundred years ago; and plums and cherries of the same age. I am of opinion, that trees, when decayed at the top, if their roots be safe, mav, by proper cutting, be renewed, and brought to a bearing state, and continue for a long time. Two years ago I cut down a large brown Beurre pear upon the wall, that was decayed in the top, and had given over bearing, and I trenched the border around it. It has made fine strong healthy shoots, and is producing some flowers this season, which is the second year since it was cut down. I likewise cut down an old atanding Swan Egg pear, that was so much decayed and overgrown with moss, that it appeared good for nothing, and a Muir Fowl Egg, in the same state; and they have produced remarkably fine healthy shoots. There are some sort of peaches, and particularly the Royal George, that gum when buded upon all soils. I have lost three of them in houses under my own management. I tried various methods to save them by binding them tight with linen cloths, and plaster of cow dung, but they always continued in a sickly state for one or two years, and then died. I last year planted a Royal George here, which had been two years trained, and in the course of the summer it began to throw out large quantities of gum at the bud, and about a foot above it, and also in some of the largest branches; it appeared altogether in a very sickly state. I had recourse to a painter's brush, and a little white paint, and covered all the places infected with gum, and in the large branches I cut out all the infected wood, and gave the wounds two coats of white paint. This season it is appearing as healthy as any of the other trees, and promising to have a good crop; and there is no appearance of gum breaking through the plant.

I find that the tender kind of fruit-trees are most subject to canker. I have observed a standard tree that was full of canker to be cured by removing it to a south wall. I have found that a cold wet season, or a heavy load of fruit, will bring on canker. The hardy kinds are always free from canker, while tender kinds, in the same soil, are full of it; therefore, in planting fruit-trees, care should be taken to plant the hardy sort in the most exposed situations, and the tender ones in the most sheltered.

I have had peach trees upon open walls full of canker; have put a glass-case over them, and have found, when the wood was well ripened, the trees free of it. I have grafted hardy kinds on trees that were almost useless with the canker, and have thereby obtained healthy trees, and great crops of fruit. There are some fine trees that have been treated in this manner at Craiglochart, near Edinburgh, of my grafting.

Standard trees are very often lost for want of pruning; and I think that in general those that are pruned in the common way, are worse instead of better for it. The common way is to get into the middle of the tree, and to cut all the branches from that place, leaving the top full and crowded.

Now I think that the pruning should be confined to the fruit bearing branches of the extremities; thinning these out regularly, that the remainder may find a free passage through them; by which means the wood will open better, and the tree will keep the freer from canker.

With regard to bringing a strong tree into a bearing state, I never was at any loss; for, by taking the mould from the roots, and properly trimming them, culling out the strongest in proportion to the growth of the tree, it will shew plenty of blossom the second year following.

The best and cheapest method that I know for saving the blossoms of wall trees, is to take Norway spruce branches, from which the leaves are fallen, and stick them into the ground with their tops against the trees, fastening others to the tops of the wall with their ends downwards, so as to meet the former; over which put three plies of old nets; fern leaves ase better, where they can be had; the nets will keep the branches firm, and the branches will keep the nets from the trees; these should remain until the fruit be set, and have begun to swell.

There is another great cause of the failure of crops of peaches and nectarines in hot-houses, which never happen on the open wall, and that is by the buds being too much swelled by protection in the autumn, and the trees being then exposed to the frost, which makes the buds, when forcing commences, drop off in place of turning out sound blossoms.

I have always fonnd that riders (i. e. wall standers) of every kind, bear more than dwarfs; the reason of which I think is, that the sap is more refined in passing through the long stem of the tree, and rendered more fit for entering the blossom. This led me to think that only a small quantity of water should be given at the time of the ascent of the sap; and I always keep my trees very dry all winter, and in the spring I give no more water than what is necessary to keep them in life before the fruit begins to swell. Thus managed, the stronger trees set their fruit in general more plentifully, and produce much better fruit than weak ones.

Method of destroying Insects on Fruit Trees.

Flour of brimstone, sprinkled by a puff, dredging box, or otherwise, on the leaves of vegetables, will effectually destroy worms and insects, and likewise promote the growth of the plant.—Peach treees are particularly improved by the application.

To escape from or go into a house on Fire.

Creep or crawl with your face near the ground, although the room be full of smoke to suffocation, yet near the floor the air is pure and may be breathed with safety. The best escape from upper windows is a knotted rope, but if a leap is unavoidable, then the bed should be thrown out first, or beds prepared for the purpose.

An effectual Method of retaining good Apples in the Country without grafting.

In every perfectly ripe apple, there will be found one, and sometimes two round seeds; the others will have one or more flatted sides. The round ones will produce the improved fruit from which they are taken, and those with flatted sides will produce the fruit of the crab, upon which the crab was inserted. It requires not a long time to ascertain the difference; for if a circle is drawn in rich ground, and the flat sided seeds planted therein, and the round seeds in the centre, the variations of quality will be discovered in two or three years; the first will throw out the leaves of a crab, and the latter the leaves of an improved tree, distinguished in shape, fibre, and lanuginous appearance, and, in due time, the fruit of each will prove every thing beyond doubt. It is to be observed, moreover, that the seeds of crabs, being originals, are mostly, if not altogether, round.

To preserve Milk.

Provide bottles which must be perfectly clean, sweet, and dry; draw the milk from the cow into the bottles, and as they are filled, immediately cork them well up, and fasten the corks with pack-thread or wire. Then spread a little straw on the bottom of a boiler, on which place bottles with straw between them, until the boiler contains a sufficient quantity. Fill it up with cold water; heat the water, and as soon as it begins to boil, draw the fire, and let the whole gradually cool. When quite cold, take out the bottles, and pack them with straw or saw-dust in hampers and stow them in the coolest part of the house or ship. Milk preserved in this manner, although eighteen months in the bottles, will be as sweet as when first milked from the cow.

To extinguish a recent Fire.

A mop and a pail of water are generally the most efficacious remedies; but if it has gained head, then keep out the air, and remove all ascending or perpendicular combustibles, upon which the fire creeps and increases in force as it rises.

To make Red Sealing Wax.

Take of shell-lac, well powdered, two parts of resin and vermillion, powdered, each one part. Mix them well together, and melt them over a gentle fire, and when the ingredients seem thoroughly incorporated, work the wax into sticks. Where shell-lac cannot be procured, seed-lac may be substituted for it.

The quantity of vermillion may be diminished without any injury to the sealing-wax, where it is not required to be of the highest and brightest red colour, and the resin should be of the whitest kind, as that improves the effect of the vermillion.

To weld Tortoise Shell.

Provide a pair of pincers, the tongs of which will reach four inches beyond the rivet. Now file the tortoise shell clean to a lap joint, carefully observing that there be no grease about it. Wet the joints with water, apply the pincers hot, following them with water, and the shell will be found to be joined as if it were originally the same piece.

To extinguish a Chimney on Fire.

Shut the doors and windows, throw water on the fire in the grate, and then stop up the bottom of the chimney.

To remove Stains from Mourning Dresses.

Boil a good handful of fig-leaves in two quarts of water till reduced to a pint. Rombazine, crape, cloth, &c. need only be rubbed with a sponge dipped in the liquor, and the effect will be instantly produced.

To remove unpleasant Odours.

The unpleasant smell of new paint is best removed by time and atmospheric ventilation : but tubs of water placed in the apartment, will act more rapidly ; with this inconvenience, however that the gloss of the paint will be destroyed. Unpleasant smells from water-closets, or all articles of furniture connected with them, may be modified with the application of lime-water, to which may be added the soap-suds that have been used in washing, which neutralize the pungently offensive salts : a little quick-lime put into a night-chair will destroy all disagreeable effluvia.

Aromatic pastiles of the following composition may be burned with great succes ; take of camphor, flowers of benzoin, powdered charcoal, powdered cascarilla bark, powdered Turkey myrrh, and powdered nitre, each equal quantities; beat them with syrup sufficient to form a mass, and divide into pastiles of a conical shape. They may be mixed up with spirit of turpentine (the rectified oil) or any thing that is inflammable. Syrup does best, as it is most adhesive.

To preserve Brass Ornaments.

Brass ornaments, when not gilt or lackered, may be cleaned in the same way, and a fine colour may be given to them by two simple processes. The first is to beat sal-ammoniac into a fine powder, then to moisten it with soft water, rubbing it on the ornaments, which must be heated over charcoal, and rubbed dry with bran and whiting. The second is to wash the brass work with roche alum boiled in strong ley, in the proportion of an ounce to a pint; when dry it must be rubbed with fine tripoli. Either of these processes will give to brass the brilliancy of gold.

To preserve polished Irons from Rust.

Polished iron-work may be preserved from rust by a mixture not very expensive, consisting of copal varnish, intimately mixed with as much olive oil as will give it a degree of greasiness, adding thereto as much spirit of turpentine as of varnish. The cast iron work is best preserved by rubbing it with black-lead.

But where rust has begun to make its appearance on grates or fire-irons, apply a mixture of tripoli with half its quanitity of sulphur, intimately mingled on a marble slab and laid on with a piece of soft leather; or emery and oil may be applied with excellent effect; not laid on in the usual slovenly way, but with a spongy piece of the fig-tree fully saturated with the mixture. This will not only clean but polish, and render the use of whiting unnecessary.

To preserve Clothes.

As clothes when laid up for a time, acquire an unpleasant odour, which requires considerable exposure to the atmospheric air, it will be prevented by laying recently made charcoal between the folds of the garments; and even when the odour has taken place, the charcoal will absorb it.

To White Wash.

Put some lumps of quick-lime into a bucket of cold water, and stir it about till dissolved and mixed, after which a brush with a large head and long handle to reach the ceiling of the room, is used to spread it thinly on the walls, &c. When dry it is beautifully white, but its known cheapness has induced the plasterers to substitute a mixture of glue size and whiting for the houses of their opulent customers; and this, when once used, precludes the employment of lime-washing ever after; for the latter, when laid on whiting becomes yellow.

White-washing is an admirable manner of rendering the dwellings of the poor clean and wholesome.

Receipt for a substitute for Barm or Yeast.

Boil two ounces of hops in four quarts of water twenty minutes; strain it, and whilst hot stir in half a pound of flour; when milk warm, mix in half a pint of good ale yearst, or a pint of this mixture, which you should always reserve to keep a supply. When nearly cold, bottle and cork it well, and keep it for use in a cool place; if too warm, it would be apt to fly; you will judge of this by the season of the year; observe to fill the bottles two thirds full.

When used, put of it into the flour you intend for bread, in the proportion of a pint to twenty-four pounds, with water to make it a proper warmth, mix a little of the flour with it in the middle of the mug, or kneading vessel; it must be covered close, and set in a tolerably warm place all night. Knead it well in the morning, and let it stand some hours longer to rise. It should be eighteen or twenty hours from the first putting together, before your bread is set into the oven.

To judge of the Weather.

If a person intends to ride any where in winter, and suspects it will rain, he may know by the following observation eight hours before the rain comes on; and so resolve to take a great coat with him or otherwise escape it, viz. Let him observe the top of the mercury in the tube of a barometer, and if the rain be about to come, it will be indented to a concave, otherwise, convex or protuberant. But as the barometer is sometimes deceitful, the point from which the wind blows, and the appearance of the day are more certain.

Excellent Varnish for Umbrellas, &c.

Great coats, and other articles much exposed to the weather, are rendered both sun and rain proof, by the following excellent varnish: Boil well together two pounds of turpentine, one pound of litharge in powder, and two or three pounds of linseed oil. When the article is brushed over with this varnish, it must be dried in the sun; after which, the greatest heat will not affect it.

FINIS.

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